Reason for Referral:

Ellie’s parents are concerned that her lack of focus, poor organization and time management skills, and ongoing struggles with reading comprehension and writing are contributing to declining motivation and increased frustration.

Referral questions include:

1) Why has Ellie not shown adequate progress in response to Tier 2 interventions?
2) Does she have specific educational needs that could be addressed to improve skill acquisition?
3) Is she a student with a disability who may require more intensive intervention?
Background Information:

**Family history**

Ellie lives with her mother, stepfather, and two younger siblings, ages 2 and 4. She has had no contact with her birth father since her mother remarried 5 years ago. Mrs. Moore reports that her daughter met developmental milestones as expected and has no medical conditions. She indicates there is no maternal family history of learning problems but that Ellie’s birth father took medication as a child for hyperactivity. The family moved seven times before her fifth birthday and her mother indicates that Ellie had difficulty adjusting to each move. She has been enrolled in her current school since kindergarten.

According to her mother, Ellie gets along well with family members and they frequently enjoy family activities such as riding bikes, camping, fishing, and boating. Mrs. Moore describes her daughter as friendly and well liked by others, but somewhat disorganized, forgetful, and often distracted, especially when doing her homework or chores at home.

**Academic history**

Ellie’s academic struggles began in second grade when she was retained because her reading skills were below grade level. For the past 3 years, Ellie primarily has been a C-D student. Her lowest grades have been in reading and writing and her higher grades have been in math. Although her scores were low, she passed the state third-grade exam in all areas. This year, all of her grades have dropped to the degree that her teacher may recommend retention.

**Intervention**

This fall, Ellie’s fifth-grade teacher, Ms. Jones, contacted the campus Child Study Team with concerns about Ellie’s reading fluency and comprehension, writing, and math. The team placed Ellie in after-school tutoring twice weekly for 30 minutes each session. According to her tutor, Mr. Clark, she was assigned to a group with three other students and received intervention that focused on learning effective comprehension strategies.

Progress-monitoring data was collected using the AIMSweb® Reading-CBM (Oral Reading Fluency) prompts on a biweekly basis. During the 10 weeks of tutoring, Ellie has shown little progress. The other students in her tutorial group have gained an average of 3 wcpm per week whereas Ellie has gained an average of .5 wcpm. Intervention is not closing her achievement gap enough to put her on track to meet grade-level goals.
Behavioral Observations:

Ellie was observed during science when the class was working in small groups on a team project. The task requirement was to read a section in the text, create a chart, and relate the information to a video shown the previous day. Ellie spent the assigned time talking with a friend in the group while others were reading. She did not participate in any of the assigned tasks. When asked by the observer about her role on the team, she commented that she didn’t like science and didn’t remember the video.

During testing, Ellie demonstrated similar avoidance behaviors when asked to read or write. She would put her head on her arm on the table, sigh loudly, and make comments such as, “This is too hard. I can’t do it. I hate to read.” She required considerable encouragement to complete the academic subtests. In spite of her frequent self-deprecating remarks when asked to do anything that required reading or writing, she was otherwise engaged in tasks with good effort, attention, and persistence. She preferred tasks that were hands-on and those in which she was asked to provide verbal responses to oral questions. Her oral language skills, including vocabulary and syntax, appear to be age-appropriate.
**Assessment Plan:**

- **Parent Interview** (Mrs. Moore)
- **Teacher Interviews** (fifth-grade teacher, Ms. Jones; tutor, Mr. Clark)
- **Student Interview**
- **ACES** (Academic Competence Evaluation Scales) (teacher, Ms. Jones)

**Select subtests from:**

- **WISC®-IV** (Wechsler Intelligence Scale for Children®, Fourth Edition Integrated)
- **NEPSY®-II** (NEPSY®, Second Edition)
- **DAS® II** (Differential Ability Scales®, Second Edition)
- **WIAT®-III** (Wechsler Individual Achievement Test®, Third Edition)
- **PAL™-II Diagnostic Assessment for Reading and Writing** (Process Assessment of the Learner, Second Edition)

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**Test Results:**

**Teacher Information**

Ms. Jones was asked to complete the ACES Teacher Rating form to clarify her concerns related to Ellie’s academic abilities and academic-enabling skills and to prioritize her concerns based on which skills were critical for success in her classroom. She noted significant concerns with Ellie’s reading and language arts skills and endorsed both as priorities for intervention. She identified academic strengths as Ellie’s oral communication, problem-solving, and generalization skills. She also identified significant academic-enabler concerns related to motivation and study skills, and she marked motivation as her highest priority. She endorsed Ellie’s strength as her interpersonal skills.

**Student Information**

Ellie describes herself as “a bad student who needs to work harder.” She says that she likes math but that the class is much harder this year. She comments that she wishes her teachers would not require so much writing and that sometimes she knows the answer but has difficulty putting words down on paper. When asked about her strengths, Ellie commented that she is a good artist.
Achievement

In order to establish Ellie’s skill levels in the academic areas of concern, she was administered the WIAT®-III subtests for reading, writing, and mathematics. Her achievement is reported by comparing her performance to those of students in fifth grade, mid-year.

Reading Skills

Ellie was asked to read whole words (Word Reading subtest); her score of 78 fell below average at the 7th percentile ranking. Her ability to decode nonsense words (Pseudoword Decoding subtest) also fell below average, with a standard score of 75 placing her at the 5th percentile ranking.

An item-level error analysis reveals that she missed words containing irregular vowels, vowel digraphs, consonant digraphs, or silent consonants. Further, Ellie does not read real or nonsense words with automaticity. She reads whole words much more slowly than her grade peers do; in fact, it frequently took her up to 5 seconds to recognize words that she knew. When she began to miss words, she quickly lost confidence and began to guess.

Ellie also was asked to read aloud from a passage that was at fifth-grade reading level. Her reading was so slow and laborious that she was asked to read at the fourth-grade level instead. This level was also too difficult, so her oral reading fluency score is based on reading at the third-grade level. All of Ellie’s oral reading scores fell in the below-average range. Her Oral Reading Fluency standard score of 69 fell at the 2nd percentile ranking, her Oral Reading Accuracy yielded a standard score of 75 (5th percentile ranking), and her Oral Reading Rate standard score was 71 (3rd percentile ranking). She reads without prosody, which further affects her poor fluency.

Next, Ellie was asked to read grade-level passages (she chose to read silently) and to answer questions orally about what she had read. When provided text at the fifth-grade level, she could not answer the requisite number of accompanying questions. After working backwards grade by grade, the examiner deemed that the most appropriate level for evaluating Ellie’s reading comprehension was the third-grade level. Her comprehension score at this level was a 79 (8th percentile ranking).

She demonstrates very poor comprehension even on reading materials that are two grade levels below her grade placement. These scores are consistent with her abilities in word reading and oral reading and they help explain why she is having so much difficulty when expected to read and understand fifth-grade texts. Given that students are asked infrequently to read aloud...
after the primary grades, it is certainly possible that her teachers are unaware of just how poor her basic reading skills are. It is also not surprising that she avoids reading whenever possible.

**Written Expression**

Ellie’s scores on the Written Expression subtests also fall within the below-average range. Her Spelling standard score is 75 (5\textsuperscript{th} percentile ranking) since she demonstrates encoding errors similar to her decoding errors in reading. She was generally able to represent initial sounds correctly but made numerous errors in producing correct vowel and consonant digraphs. Her typical approach was phonetic but some spellings were unrecognizable and she misspelled every irregular word administered.

When asked to combine multiple sentences or generate a sentence using a target word, she earned a Sentence Composition standard score of 80 (9\textsuperscript{th} percentile ranking). Her score on Sentence Combining was slightly stronger than on Sentence Building and her errors were primarily with writing mechanics (spelling and punctuation).

She also experienced difficulty on a task that required her to write an essay in response to a prompt. Her Essay Composition score of 78 (7\textsuperscript{th} percentile ranking) was the result of errors in writing mechanics, poor theme development, and poor text organization. She waited for almost a full minute before beginning to write and wrote fewer words than the typical fifth grader.

**Mathematics**

At the same time, Ellie’s average score of 98 (45\textsuperscript{th} percentile ranking) on the WIAT-III Numerical Operations subtest identifies an academic strength, but her Math Problem Solving standard score is 85 (16\textsuperscript{th} percentile ranking). It appears that her reading difficulties influence her ability to solve word problems in spite of the fact that the items were read to her and remained in view as she attempted each item. On occasion, Ellie had difficulty setting up the problem and erased and reworked. Once she began calculation, she generally gave the correct answer.

**Achievement Scores Summary**

Overall, Ellie’s achievement scores indicate below-average performance in basic reading, reading fluency, reading comprehension, spelling, and written expression. Conversely, her math calculation and math problem-solving scores are within the average range. Her achievement scores are consistent
with her classroom performance and reveal significant deficits in both reading and writing. The next step was to determine whether Ellie has the cognitive abilities necessary to support the acquisition of academic skills.

**Cognitive Processes**

In order to evaluate Ellie’s cognitive processes, the 10 WISC-IV core subtests were administered, followed by three of the WISC-IV Integrated subtests. In addition, five NEPSY-II subtests were administered and one DAS II subtest was given.

Ellie’s FSIQ score of 100 on the WISC-IV test is attenuated by two index scores that are significantly lower (at the .05 level) than the other index scores. As a result of these unusual discrepancies (less than 10% base rate), the General Ability Index (GAI), which is an alternative global score, was determined to be a better representation of Ellie’s overall cognitive ability. Her GAI score of 111 (77th percentile ranking) places her in the high average range.

**Verbal Reasoning**

Ellie’s Verbal Comprehension Index (VCI) score, based on subtests that measure verbal reasoning and concept formation, is 110 (75th percentile ranking). She demonstrates relative cognitive strengths in the areas of language development, verbal abstract reasoning, word knowledge, and verbal concept formation. VCI correlates highly and is a good predictor of a student’s achievement, particularly in the areas of reading and writing.

Her high average VCI score would predict at least average achievement but that is not the case, so that her underachievement in these two areas is unexpected. This discrepancy between her verbal reasoning abilities and her academic deficits no doubt contributes to her frustration, particularly when asked to demonstrate what she has learned through writing. It is likely that her poor reading comprehension is not due to weak vocabulary or other language-related skills.

**Nonverbal, Visual-Perceptual Reasoning**

Ellie’s Perceptual Reasoning Index (PRI), based on measures of nonverbal abstract reasoning, visual perception, and organization, is 108 (70th percentile ranking). Her verbal and nonverbal abilities are commensurate but it should be noted that her score on Block Design was lowered by slower speed (as seen in the BDN score of 11 versus her BD score of 9). On the two PRI subtests that did not require quick response time, her high average scores are among her highest.
She also was given Elithorn Mazes, on which she performed at the 16th percentile ranking. This timed subtest required her to draw a trail through a maze while observing specific rules. The task taps some of the same abilities as the other PRI subtests (i.e., visual scanning, visual and motor sequential processing, cognitive flexibility, planning and organization) but also requires the ability to inhibit a response until a route can be identified. Ellie did not respond impulsively and it is likely that her lower score is the result of a combination of slower cognitive-processing speed and weak visual-spatial mental manipulation (working memory).

**Working Memory**

Ellie’s Working Memory Index (WMI), based on subtests requiring auditory attention, concentration, and sequencing skills as well as mental manipulation of verbal information held in short-term memory, is 88 (21st percentile ranking). Ellie was administered the Digit Span (forward and backward), Visual Span, and Spatial Span subtests. She is able to register verbal information in short-term memory (Digit Span Forward=SS 9) as well as other children her age can, but when she must manipulate that information over a brief time period, her score drops to below average (Digit Span Backward=SS 6). Her ability to register information that is presented visually is weaker than her ability to register information that is conveyed verbally (Visual Digit Span=SS 6). She has similar difficulty when information must be registered in a visual-spatial format (Spatial Span Forward=SS 6) but mental manipulation of visual-spatial information was her weakest score (Spatial Span Backward=SS 5), placing her at the 5th percentile ranking.

Her behavior on these tasks was familiar in that she attempted to hold information in short-term memory using her stronger verbal ability. She verbally rehearsed the information for both Digit Span and Visual Span but was unable to use that strategy effectively on Spatial Span. She closed her eyes on the later subtest, shook her head, frowned, and expressed her frustration. Her responses appeared to be guesses although she was able to match the number of items that had been presented. She requested a break after these subtests, commenting that she had a headache.

**Processing Speed**

Ellie earned her lowest scores on the two subtests that contribute to the Processing Speed Index (PSI), which is 83 (13th percentile ranking). Her performance on Coding, which requires processing speed, short-term memory, learning ability, cognitive flexibility, attention, and motivation,
NEPSY-II subtest results suggest that verbal reasoning is a strength for Ellie but that she is easily overwhelmed by too much incoming and competing verbal information, she does not benefit significantly from repetition, and learning improves when she has additional time to consolidate new information into long-term memory.

placed her at the 16th percentile ranking. Ellie showed considerable frustration on this task, talking her way from one symbol to the next. With each new numeral, she returned to the key for the corresponding symbol, suggesting that her rate was slowed by difficulty either in getting the new information into short-term memory or in benefitting from the repetition so that she actually “learned” the pairings.

Her slower speed on Symbol Search (also at the 16th percentile ranking) was also the result of checking the targets repeatedly. Both PSI subtests require the quick identification and discrimination of visual-symbolic information, a necessary ability for accurate, fluid reading.

**Memory and Learning**

In order to investigate how Ellie’s slower processing speed and difficulties on working-memory tasks affect learning, she was given select subtests from the NEPSY®-II and DAS® II tests.

**NEPSY-II List Memory subtest results**

When given a task of learning a list of 15 words after hearing the list 5 times (NEPSY-II List Memory), Ellie was able to improve her performance from an initial recall of 6 words to 9 words whereas other children her age in the normative sample who had similar initial recall improved with verbal repetition to 12 words. Then, she was presented an alternative list and she recalled 5 of the 15 new words, which resulted in an average score similar to her initial performance on the first list.

Next, Ellie was asked to repeat the initial list without benefit of a new presentation and her recall dropped to 6 words. The recall of the first list was affected by the interference caused by the alternative list. Meanwhile, age mates in the normative sample who had similar initial recall on the alternative list were able to recall 11 words from the original list. After a time delay of 25 minutes and without any prior warning, Ellie was asked once more to recall the initial list. Her recall was not affected by the time delay; in fact, the additional time had a positive effect on her performance.

In summary, it appears that Ellie is easily overwhelmed by too much incoming and competing verbal information, she does not benefit significantly from repetition, and learning improves when she has additional time to consolidate new information into long-term memory. Even though verbal reasoning is a strength, Ellie struggles with verbal tasks that require her to learn lots of information quickly. It also should be noted that her verbal rehearsal strategy might actually contribute to additional interference.
Ellie also was given the DAS II Recall of Objects subtest, which taps a distinct visual-verbal memory system by requiring the examinee to look at a page containing pictures of 20 common objects for a limited time. On the first presentation, the examiner also names the objects. Initially, Ellie could name 5 objects and after a second exposure, her recall improved to 7. There was no improvement after a third exposure. Her short-term recall placed her at the 1st percentile ranking when compared to other children her age. After a 20-minute time delay, her recall remained at 7 words, which placed her at the 5th percentile ranking.

It is interesting to note that although Ellie named 7 objects on trials 2 and 3 and the delayed trial, they were not always the same objects. Only 3 objects were listed every time. In addition, she seemed unaware that she could have grouped items by categories to increase recall. Once more, Ellie shows a slowed rate of learning even with repeated trials and little benefit in receiving both visual and verbal information simultaneously. She employed ineffective verbal rehearsal to retain information on the immediate trials but was unable to do so on the delayed trial. However, in spite of the interference effect, she was able to store and retrieve 7 of the 20 objects after the time delay. Her performance indicates poor imagery for visual information, use of ineffective and superficial encoding, interference effects, and difficulty integrating visual and verbal input.

**Executive Functions**

In addition to her slower processing speed and trouble learning new information quickly, Ellie experienced difficulty on subtests that assess
various executive functions. On the NEPSY-II Animal Sorting subtest, her overall performance was slightly below the average range but she identified sorts slowly and she talked her way through each one. On the Auditory Attention and Response Set subtest, which requires selective sustained attention and adequate registration of verbal information in working memory, she had difficulty shifting and maintaining set, multi-tasking, and reacting quickly.

When the demands for executive control increased due to the cognitive load, speed, and working memory requirements, she struggled even more. On the Inhibition subtest, which measures inhibitory control, cognitive flexibility, and self-monitoring, Ellie's poor performance was primarily due to slow naming speed. As the demands on working memory and cognitive flexibility increased, her performance declined.

To summarize, Ellie demonstrates many behaviors typically seen in youngsters with executive dysfunction; namely, poor abilities in planning, organization, and sustained attention as well as lack of effective and efficient learning strategies (metacognition).

**Processes Specific to Reading and Writing**

To better understand the processes related to Ellie's low scores in reading and writing on the WIAT®-III test, the examiner gave her select subtests from the PAL™-II Diagnostic Reading and Writing Battery. Her scores were below expectation on every subtest. She had difficulty on orthographic tasks that asked her to recall words or parts of words that she had seen for a few seconds (Orthographic Coding) and when presented with three phonetically equivalent words, she had trouble identifying the correctly spelled word (Word Choice).

Her Verbal Working Memory score identified problems manipulating information (such as recalling what letter comes before m) or spelling a word backwards. She struggled with manipulating sounds within words (Phonological Coding). She had particular difficulty on a task that required her to name an array of letters, letter groups, or words as quickly as possible (RAN).

Ellie’s slow processing speed, paired with her difficulty in recognizing whole words with automaticity, are indicative of her reading fluency deficits. Her lack of mastery of the alphabet principle has resulted in significant basic reading delays. The outcome of poor decoding, paired with dysfluency, is reduced reading comprehension.
In spite of high average cognitive abilities, Ellie has experienced academic difficulties in reading and writing since second grade. Intervention has typically been provided through re-teaching (tutorials and grade retention) although, this year, her intervention has focused on reading-comprehension strategies. These approaches have been minimally effective and this evaluation sheds some light on why she is a nonresponder.

Referral question #1: Why has Ellie not shown adequate progress in response to Tier 2 interventions?

Over time, considerable effort has been put forth to improve Ellie’s phonological skills. Unfortunately, her reading deficits are not just phonological; rather, she is also delayed in her development of the necessary orthographic skills, which also require remediation. Repetition has not been particularly helpful because this is not the best way for her to learn new information. Further, her deficits in working memory have interfered with the transfer of new learning into long-term memory. Teaching reading comprehension strategies using grade-level text has not been effective because she cannot read enough of the words to capture meaning.

Referral question #2: Does she have specific educational needs that could be addressed to improve skill intervention?

The second referral question deals with how Ellie learns and how instruction might be altered to increase skill acquisition. Ellie tends to learn more effectively when instruction is provided orally. In fact, she adds her own verbal input when presented with new information. However, her verbal learning is susceptible to interference, so it is easy for her to lose new information or confuse it with other pieces of information early in the learning process. Her overall processing speed is slow and she has a limited repertoire of learning strategies. Her verbal rehearsal requires more time and can actually create interference.
However, it appears that the effects of interference may be more temporary than permanent and some learning occurs in spite of it. Ellie is easily overwhelmed by too much incoming data or the need to integrate multisensory information quickly. Because new learning requires additional time to be consolidated into long-term memory, she usually has learned more information than she is able to demonstrate immediately. In other words, providing additional time and limiting the amount of information to be learned is more beneficial than repetition. Presenting her with limited amounts of information at regular successive intervals may increase her learning.

Another important factor is related to executive functions. She does not organize incoming information in a way that would enhance later recall. She is somewhat impulsive and does not plan how to accomplish a task. Ellie also exhibits deficits related to cognitive flexibility. She tends to get stuck on a solution and cannot generate alternatives. She is not strategic when problem solving, so she is quickly frustrated when her initial solution is not viable. When frustration sets in, effort declines.

Teaching Ellie how to use visual imagery and visual organizational strategies to better encode new information can place fewer demands on her verbal working-memory system. Providing opportunities to brainstorm alternative ideas can support more flexible and productive problem solving. These two strategies can be especially helpful when she needs to demonstrate her knowledge through writing.
Referral question #3: Is she a student with a disability who may require more intensive intervention?

In spite of Ellie’s strong reasoning abilities, her cognitive deficits related to slower processing speed, working memory, and executive functions have affected the acquisition of reading and writing skills. She has significant deficits in both the phonological and the orthographic skills necessary for reading, so she struggles to decode words, identify nondecodable words, and automatically recognize whole words. As a result, she lacks fluency. All of these deficits contribute to her inability to read text with understanding (comprehension). Her inability to encode words is evident in her poor spelling performance. Her difficulty in applying writing mechanics has resulted in written expression skills that are significantly below grade-level expectations.

The results of this evaluation provide a body of compelling evidence that Ellie is a student with a Specific Learning Disability in the areas of basic reading, reading fluency, reading comprehension, and written expression. Additionally, results related to her executive dysfunction suggest probable Attention Deficit Disorder, Predominantly Inattentive Type.

To foster better reading and writing outcomes, Ellie needs remediation of her basic phonological and orthographic skills through systematic, explicit, and direct instruction. Progress monitoring should continue on a biweekly basis. She can also benefit from frequent opportunities to read orally from text written at third- to fourth-grade level to increase comprehension and fluency.

Reading-comprehension strategies should be taught using text that is at her independent reading level. Teachers can provide additional time for her to answer questions orally and to complete class assignments related to new learning. Check for understanding after she has had time to consolidate the new learning into long-term memory. Help her learn how to plan and organize her time to increase efficiency on long-term tasks. Teach her memory strategies, including ways to organize information, to build memory span, to add visual imagery, and to determine when verbal rehearsal is beneficial and when a different approach is required.

The information from this evaluation will be presented to Ellie’s parents and IEP committee for purposes of eligibility determination and creation of an appropriate intervention plan.
References


