Vocabulary Knowledge and Academic Achievement

Eva, *age 9*

Reason for Referral

Eva's teacher referred her for a comprehensive psychoeducational evaluation due to Eva's lack of engagement during class lessons, and her consistently low performance on standardized group achievement tests and classroom tests. Specifically, the teacher wanted to understand how Eva's below-grade level reading skills affected her ability to learn new information in grade-level textbooks.

History and Background

Eva is a 9-year-old girl in the fourth grade. She lives with her parents, two older brothers, and younger sister. Her parents reported that Eva started speaking later than their other children. According to her parents, when Eva was a toddler and preschooler, the providers in her daycare center and her preschool teacher expressed concern about Eva's expressive language and drawing skills.

Eva says that she enjoys school, but she is noticeably uncomfortable when talking about academic subjects and her own perceptions of her academic performance, especially in reading and writing. She says she doesn't really like to read much and does not pursue reading on her own as a source of enjoyment. She sees most schoolwork as difficult, but says she does her best to learn in class and to complete homework assignments. Mathematics is Eva's favorite subject. When not playing with friends or doing schoolwork, Eva spends her time watching TV with her brothers and sister.

Vision and Hearing Screenings

Eva's vision and hearing were screened prior to the evaluation. Her far and near visual acuity and her hearing acuity were within normal limits. This was consistent with parents' reports that Eva's vision and hearing were normal according to her pediatrician.

Test Behaviors and Observations

Eva presented as a friendly and engaging child. Rapport was established easily and maintained throughout the test session. She maintained good eye contact while listening and speaking. She responded appropriately to questions, although her responses tended to be brief. Her speech was clear and intelligible.

Eva was polite and cooperative throughout the evaluation process, and she seemed to put forth her best effort. The tests were administered according to standardized procedures, and the results of the evaluation are considered to be an accurate estimate of her current functioning. This report will focus on the test results that will answer the referral question.

Academic Achievement

The first step in the evaluation process was to confirm reports of Eva's achievement, especially her achievement in language arts. The *Wechsler Individual Achievement Test®, Third Edition (WIAT®-III)* was administered for this purpose.

The results confirmed reports from her parents, teacher, and Eva herself that her achievement in math is at grade-level. For language arts, her achievement was significantly below grade level in word recognition, word decoding, oral reading fluency, and spelling. These weaknesses adversely impact her comprehension of grade-level text. However, when provided with text she could decode, Eva responded correctly to questions focused on stated facts or details from the passage. This suggests that weaknesses in decoding and sight word recognition adversely impact Eva's comprehension of grade-level text.

In addition to word recognition and word decoding, reading comprehension requires word knowledge, understanding of conceptual relationships and factual or literal content, and ability to make inferences based on text. Analysis of Eva's performance on reading comprehension indicates that most of the incorrect responses were for items that assessed inferential comprehension. Because determining what the text means requires prior knowledge, it is important to assess Eva's overall verbal comprehension abilities, including her word knowledge.

Verbal Comprehension

Eva's verbal comprehension abilities were in the Very Low range, as measured by the *Wechsler Intelligence Scale for Children®, Fifth Edition (WISC®–V)*. She struggled to define words that were read aloud to her, and to describe a similarity between two words that represent a common object or concept. Although her performance might suggest poorly developed word knowledge, low scores in this area may occur for a number of other reasons including difficulty retrieving acquired information, problems with verbal expression, or general difficulties with reasoning and problem solving.

Based on her performance on other tasks, it seems we can rule out reasoning and problem solving as the explanation for her low verbal comprehension scores. Her performance on the verbal comprehension subtests appeared to reflect a lack of higher level conceptual thinking, but her performance on subtests that assess fluid reasoning indicated she was capable of higher level conceptual reasoning.

Behavioral observations suggest that Eva's performance on the verbal comprehension tasks was affected by retrieval and verbal expressive difficulties. She experienced a great deal of difficulty expressing her thoughts in words for the verbal comprehension tasks and often chose to respond "I don't know." When identifying conceptual similarities, she provided adequate responses to the easiest items that involved obvious physical similarities between two objects. She usually responded with "I don't know" for most of the items that involved more abstract associations. Given this information, the school psychologist collaborated with the Speech-

Language Pathologist (SLP) to get more information about Eva's recognition and production vocabulary. Specifically, they wanted to understand the impact of retrieval deficits and expressive vocabulary difficulties on verbal comprehension.

Receptive and Expressive Vocabulary

Eva scored in the average range on a measure of listening vocabulary using the *Peabody Picture Vocabulary Test™, Fifth Edition (PPVT™-5)* Standard Score = 101. This score was consistent with other information on receptive vocabulary. Her production vocabulary, measured with the *Expressive Vocabulary Test™, Third Edition (EVT™-3)* Standard Score = 80, was moderately low and significantly lower than her receptive vocabulary. This pattern of performance indicated a problem with word retrieval, which also was suggested by her performance on the verbal comprehension subtests on the *WISC-V*.

PPVT-5	EVT-3	Difference	Significance of Difference	% of Population with Difference
101	80	21	0.01	5%

Item analysis indicates that the difference between receptive and expressive performance was larger for verbs and attributes than for nouns. Her teacher confirmed this finding, and also noted that Eva tends to use the same verb words repeatedly, and that she chooses the same basic verbs.

Eva demonstrated a receptive and expressive strength on basic words that commonly appear in spoken language (Tier 1 words). On high frequency words used by mature language users across several content areas (Tier 2 words), her performance was better receptively than expressively. With this view of her overall academic vocabulary level, we can conclude that Eva does not have a robust lexicon for her age, and that she would benefit from direct instruction to expand her vocabulary with particular attention to Tier 2 words.

To understand the relationship between Eva's language skills and classroom performance, the Speech-Language Pathologist evaluated Eva's ability to think about and use language to make inferences, manipulate conversational speech given a context, use words in multiple ways, and use language in a non-literal manner.

Meta-Pragmatics and Meta-Semantics

On the *Clinical Evaluation of Language Fundamentals®, Fifth Edition Metalinguistics (CELF®-5 Metalinguistics)*, Eva performed within the average range on tasks that required her to use content and context to make situationally appropriate inferences, and to initiate appropriate conversations, given constraints set by word choices and interactive contexts (*Meta-Pragmatics Index* = 93). She demonstrated average skill in identifying and formulating logical inferences on the basis of existing causal relationships or event chains presented in short narrative texts (*Making Inferences* scaled score = 9). Her performance also was within the average range on a task that required her to initiate a conversation or respond in a way that is relevant and pragmatically appropriate to the context and audience while incorporating given words in semantically and syntactically correct sentences (*Conversation* scaled score = 9).

In comparison to her average performance on the *Meta-Pragmatics* subtests, Eva demonstrated a weakness on tasks that required her to process and understand sentences with multiple meanings and abstract, idiomatic expressions (*Meta-Semantics* Index score = 73). She struggled to recognize and interpret different meanings of selected word-level and sentence-level ambiguities (*Multiple Meanings* scaled score = 6), and to interpret figurative expressions (idioms) within a given context and match each expression with another figurative expression of similar meaning (*Figurative Language* scaled score = 4).

Analysis of Eva's error response patterns on the *Figurative Language* items indicates that she interprets idioms literally when the meaning of the words making up the expression have no resemblance to the figurative meaning. The error analyses for *Multiple Meanings* indicated structural and semantic weaknesses. It is likely that weaknesses in vocabulary knowledge, especially of Tier 2 words, adversely impacted Eva's ability to identify both word-level and sentence-level ambiguities.

Subtest/Subtest Component	Standard Score	Percentile Rank
Meta-Pragmatics Index	**93**	**32**
Making Inferences	9	37
Conversation Skills	9	37
Meta-Semantics Index	**73**	**4**
Multiple Meanings	6	9
Figurative Language	4	2

Information from teachers and parents on the *Metalinguistic Profile* confirmed weaknesses in idiomatic language. This finding is consistent with Eva's performance on reading comprehension for which she did better on items that assessed literal comprehension compared to items that assessed inferential comprehension.

Summary and Recommendations

The results of the evaluation indicate that Eva has yet to master the metalinguistic skills necessary for full communicative competence and academic success as the classroom content becomes more inferential in nature. Based on the assessment information, she would benefit from structured language tasks to address her weakness in the area of meta-semantic language. Goals and objectives should be targeted toward explicit teaching using meta-semantic tasks such as resolving lexical and structural ambiguities, and recognizing non-literal language.

Eva's basic reading skills are below grade level, and this affects her ability to understand grade-level text. This may explain her apparent lack of engagement during class lessons. Because Eva is still learning to read, she is struggling with the demands of the grade four curriculum, which require her to use reading to expand her vocabulary and acquire new information.

The following recommendations will improve Eva's performance in the classroom.

1. Eva will need instruction for basic reading skills. However, because of her grade placement, word-level instruction (word recognition and decoding) should be integrated with text-level instruction. As we noted from the assessment results, she is able to extract the literal meaning from factual information stated in text. She needs to improve her ability to construct meaning based on inferences that go beyond what is stated in text. She also needs to learn to draw on the background knowledge already in long-term memory, and to create new knowledge in memory based on information in the text.

2. Instruction should also help Eva monitor her own reading comprehension and give her strategies that she can use to resolve comprehension problems and determine the meaning of unknown words. She should also incorporate silent reading activities such as silently read three sentences and choosing the one that makes sense or that uses a target word correctly.

3. To strengthen Eva's depth of word knowledge and her understanding of concepts such as hot/cold, provide Eva with a series of sentences that require her to fill in the blank with synonyms, antonyms, and related words, and provide a word bank that expands on the target concept. For example, to strengthen her concept of hot, include words such as heated, warm, humid, tepid, toasty, warmed, red-hot, scalding hot, and lukewarm. Eva should be encouraged to use each of the words in a sentence, and taught idiomatic usages and definitions, such as hot tempered, hot head, hot streak, and hot commodity.

4. When Eva is learning new information, strategies should be used that will facilitate storage of information in long term memory. For example, presenting the information using different sensory channels (e.g., verbal as well as visual and kinesthetic), creating mnemonics (e.g., **M**y **D**ear **A**unt **S**ally to remember the order of operations in math), and connecting new learning with previous learning.

5. To facilitate retrieval of information, and to encourage Eva to engage in classroom discussions, the teacher can ask a question and provide two or more alternative answers from which the students can choose, instead of asking specific questions about what they remember from the lesson. This cued recall strategy can be replaced gradually with open-ended questions as Eva's classroom participation increases.