Chapter Five
INTERVENTION

Jack A. Naglieri and Steven Feifer

One of the greatest strengths of the PASS theory as measured by the CAS2 is that use of this assessment provides the practitioner with an understanding of how a student learns best (a PASS strength), what obstacles to learning may exist (a PASS weakness), and what can be done to maximize learning (the purpose of this chapter). Importantly, the four neurocognitive abilities that define the PASS theory are not difficult to explain to teachers, parents, and the students. In simplest terms, PASS can be described as follows:

Planning is used when you think about how to do something before or when you act.

Attention is used when you focus your thinking on something and resist distractions.

Simultaneous processing is used when you think about how ideas or things go together.

Successive processing is used when you manage information or actions in a specific order.

These four PASS cognitive processes can underlie academic success and difficulties. If someone is strong in one of these areas, that strength can form the basis of success. If there is a weakness, this could pose an obstacle to learning. It is our job to provide information about strengths and weaknesses to maximize the probability of success in school and in life. An important question is, then, "How do we intervene?" But first we have to clarify what we mean by intervention and how that differs from instruction.

We will use the term *intervention* to indicate a specific way of teaching that is selected or developed with consideration of the PASS cognitive processing profile of the student and the relationship it has to academic performance. *Instruction* is the application of some method of teaching any subject, such as a phonics or whole language curriculum, so that a student has the opportunity to learn. The application of an instructional method without consideration of the cognitive and academic processing profiles of a student is *not* an intervention. We suggest that ordinary instruction becomes an intervention when it based on the results of an assessment that includes PASS and other relevant information such as mental health, previous educational history, home environment, and so forth. The more informed you are about the characteristics of the student, the more efficient the selection of an instructional method and the more likely the intervention will be successful.

INTERVENTION'S ESSENTIAL COMPONENTS

The interventions we present in this chapter are relevant for three essential groups: students, teachers, and parents. For maximum impact, the information from a comprehensive assessment that includes the CAS2 should be carefully described to the teachers, parents, and the students themselves. When all three of these stakeholders understand the PASS strengths and

weaknesses, the relationships between cognition and academic skill acquisition, and which interventions are needed to maximize learning, the likelihood of success will increase. This process must begin with the student.

Informing the Student

When the CAS2 is used to evaluate a student referred for a suspected disability we can reasonably expect that this student's difficulties at school have adversely affected his or her selfconcept. Just as success in school is often associated with being smart, the lack of success in school can lead a student to doubt his or her ability to succeed. Thinking, or simply suspecting, that he or she is not very capable of learning can lead a student to give up more easily, further reducing the likelihood of success. It is very important, therefore, that a student be informed of his or her PASS strengths and weaknesses in a manner that is age appropriate. The goal is to give the student the clear message that weaknesses *can* be managed with thoughtful effort and that PASS strengths can be used to manage PASS weaknesses. This understanding can change the student's view of him or herself by providing reassurance that with knowledge of strengths and needs, success is possible. Therefore, practitioners should engage in a process whereby the mystery behind academic failure is replaced with a cogent explanation of PASS strengths and weaknesses.

DON'T FORGET 5.1

Remember that informing the student about his or her PASS scores is an essential step to changing the student's selfperception. Once the child knows what strengths were found, those can be used to overcome a weaknesses.

Using the Book, Helping Children Learn

A student with a weakness in a PASS area should be informed about these four PASS thinking abilities and how information about strengths and weaknesses can be used to improve learning. There are four PASS handouts (see Naglieri & Pickering, 2010) that describe each PASS way of thinking and are intended to be discussed and given to the student. These short handouts provide students with a description of how to be smart by using a specific PASS way of thinking. Figure 5.1 shows the handout for Planning. The theme of this handout is to help the student learn that you can be smarter if you “Think smart and use a plan!” before doing things (Naglieri & Pickering, 2010, p. 63). The Planning handout is central to the intervention. It is very important that students know that one way to deal with academic problems is to “Think Smart” and be strategic. The message in the handout is that you can achieve more than you have in the past if you are strategic. This requires that the student learn to recognize when the demands of a task are particularly difficult and if that difficulty is related to PASS weakness or not enough knowledge of the topic.

How to Be Smart: Planning

When we say people are smart, we usually mean that they know a lot of information. But being smart also means that someone has a lot of ability to learn new things. Being smart at learning new things includes knowing and using your *thinking abilities*. There are ways you can use your abilities *better* when you are learning.

What Does Being Smart Mean?

One ability that is very important is called *Planning*. The ability to *plan* helps you figure out *how to do things*. When you don't know how to solve a problem, using Planning ability will help you figure out how to do it. This ability also helps you control what you think and do. It helps you to stop before doing something you shouldn't do. Planning ability is what helps you wait until the time is right to act. It also helps you make good decisions about what to say and what to do.

How Can You Be Smarter?

You can be smarter if you PLAN before doing things. Sometimes people say, "Look before you leap," "Plan your work and work your plan," or "Stop and think." These sayings are about using the ability to plan. When you stop and think about *how* to study, you are using your ability to plan.

You will be able to do more if you remember to use a plan. An easy way to remember to use a plan is to look at the picture "Think smart and use a plan!" (Figure 1). You should always use a plan for reading, vocabulary, spelling, writing, math problem solving, and science.

Do you have a favorite plan for learning spelling words? Do you use flashcards or go on the Internet to learn? Do you ask the teacher or another student for help? You can learn more by using a plan for studying that works best for you.

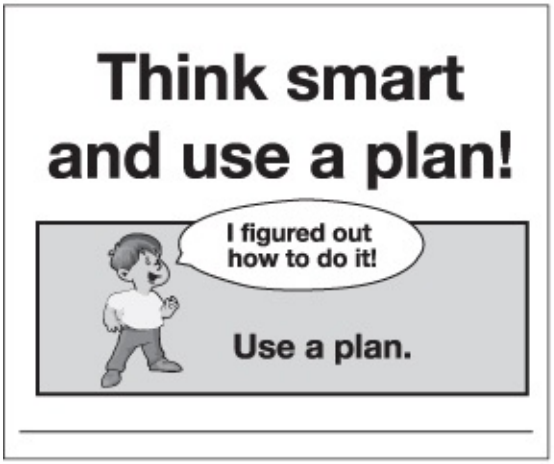

Figure 1. Picture reminder for using a plan.

It is smart to have a plan for doing all schoolwork. When you read, you should have a plan. One plan is to look at the questions you have to answer about the story first. Then read the story to find the answers. Another plan is to make a picture of what you read so that you can see all the parts of the story. When you write you should also have a plan. Students who are good at writing plan and organize their thoughts first. Then they think about what they are doing as they write. Using a plan is a good way to be smarter about your work!

Helping Children Learn: Intervention Handouts for Use in School and at Home, Second Edition, by Jack A. Naglieri & Eric B. Pickering

How to Be Smart: Planning *(continued)*

You can also be better in math if you use a plan. Think about the problem, choose a way to solve it, see if that plan works, change plans if necessary, and check the final answer carefully. Use a plan to draw a diagram of the problem so that you understand the question. Using a plan is a good way to be smart!

How Can You Interact Smartly with Other People?

You should always use a plan with the people in your life. Think about how you want to behave. If what you are doing is not working, plan for another way to reach your goal. Think about what you want to say and choose your words carefully *before* you say it. Think about how the other person might feel or act after you say something. Doing these things will help other people understand you better, and you will understand them better, too. Using a plan with other people is another way to be smart!

Remembering to Plan

Remember that sometimes when you are scared, tired, or just doing too many things at one time, you might forget to plan. This is a bad way to do things. When you see that you are not using a plan, say to yourself, "Stop and use a plan." Use a plan, and you will be a lot smarter!

Resources

Goldstein, S., & Naglieri, J.A. (2007, October 22–27). Planning and attention problems in ADHD: What parents and teachers can do. *Attention*.

Naglieri, J.A., Goldstein, S., & Conway, C. (2009). Using the Planning, Attention, Simultaneous, Successive (PASS) theory within a neuropsychological context. In C. Reynolds & E. Fletcher-Janzen (Eds.), *Handbook of clinical child neuropsychology* (3rd ed.) (pp. 783–800). New York: Springer.

Pressley, M.P., & Woloshyn, V. (1995). *Cognitive strategy instruction that really improves children's academic performance* (2nd ed.). Brookline, MA: Brookline Books.

Scheid, K. (1993). *Helping students become strategic learners*. Brookline, MA: Brookline Books.

Figure 5.1 Student Handout for Thinking Smart—Planning

To illustrate, a typical student with a specific learning disability in reading decoding has a

weakness in Successive processing (Naglieri & Otero, 2011), which makes working with the sequence of sounds and letters in words very difficult. The student with a weakness in Successive processing needs to be told that *any* task that demands sequencing will be problematic and requires a strategy, for example, blending sounds to make a word, sequencing of letters or sounds to make and spell words, remembering information in order, doing things in a specific order such as tying shoelaces, combination locks, motor tasks, and so on. One approach to meeting the demands of any task that requires sequencing such as reading or spelling is to put sounds or letters in groups. There are many wellknown strategies that can be used to help. For example, the handout "Chunking for Reading Decoding," which appears in Naglieri and Pickering's (2010, p. 86) book, teaches the student how to use a chunking strategy for reading decoding instead of trying to sound out and blend sounds to make a word. When a strategy is used in this way, the correct answer is arrived at by *thinking* about how to solve the problem (using a plan) rather than by trying to decode the word in segments (which demands much Successive processing). This change in the instruction changes the cognitive demands of the task because seeing letters in groups reduces the length of the sequence and involves Planning and Simultaneous processes. Shifting the cognitive processing demand of a task is an excellent intervention because not only does it help the child perform a task in a way that does not rely on his or her cognitive weakness but also it gives the child a chance to be successful.

Teaching the student about his or her strengths and needs and how to use cognitive tools to address the learning needs empowers him or her. Once empowered the mindset shifts from "I can't do this work" to "If I think smart, I know I can do better." This transition in perspective needs to be shared and nurtured by the adults who work with the student. It is very important, therefore, that we consider the mindset of the student. One way to understand the student's thinking about how he or she acts and thinks is to talk with the student about mindset. In simple terms, mindset is a description of the way a person thinks and acts when doing things, especially tasks that are demanding. The concept of growth and fixed mindsets described by Dweck (2006) is a valuable part of the intervention process. Students with a fixed mindset believe they cannot improve with effort, so they tend to give up easily. By contrast, those with a growth mindset believe they *can* achieve with effort and persistence. Ensuring that the student has a growth mindset is important, but so too is the mindset of the parents and teachers. When informing parents and teachers about a child's cognitive strengths and weaknesses, it is critical that the content of the conversation includes a growth mindset perspective.

DON'T FORGET 5.2

Use the handouts from *Helping Children Learn* (Naglieri & Pickering, 2010) to inform the student, parents, and teachers of ways to use PASS strengths to overcome any areas of need (see Figures 5.1, 5.2, and 5.3).

Two informal rating scales shown in Figures 5.2 and 5.3 are described as Measure of Mindset

(ChildrenAdolescents) (MOMCA) and Measure of Mindset (TeacherParent) (MOM TP) (Naglieri & Kryza, 2015) and can be used to stimulate the discussion among the teacher, parent, school psychologist, and student. The teacher, parent, and student responses to this informal checklist can be used to help determine if the student has a growth (the first five questions) or fixed (the last five questions) mindset. Simply add the scores for the first and second group of five questions and compare the totals. This will provide information about the student's selfperception and level of persistence when challenged. The goal of this discussion is to ensure that the student gets to the point where he or she can say, “I can't do it; *yet*. So, I am going to keep trying until I can.”

Measure of Mindset (Child & Adolescent)

Jack A. Naglieri & Kathleen M. Kryza - Copyright © 2015

Name _____

Date _____

Instructions: These 10 questions ask about how you think and feel. The answers you give can help us know your thoughts about how you learn. Please read every question carefully and circle the number under the word that tells what you do.

		Never	Sometimes	Most times	Always
1	I don’t give up easily.	0	1	2	3
2	When things get hard I say, “I Can do it”	0	1	2	3
3	When I fail I try harder until I get it done.	0	1	2	3
4	I believe that I can learn from my mistakes.	0	1	2	3
5	I think I can do almost anything if I try hard enough.	0	1	2	3
6	When I don’t understand something I give up.	0	1	2	3
7	I do not like to be challenged.	0	1	2	3
8	When work is hard I think, “I can not do it.”	0	1	2	3
9	When things get hard I do something else.	0	1	2	3
10	When I fail I do something else that is more fun.	0	1	2	3

Figure 5.2 Measure of Mindset: Child & Adolescent Version

Measure of Mindset (Teacher & Parent)

Jack A. Naglieri & Kathleen M. Kryza - Copyright © 2015

Name _____

Date _____

Instructions: These 10 questions ask about a child or adolescent's attitudes toward learning. Please read every question carefully and circle the number under the word that tells what you have observed about your child.

		Never	Sometimes	Most times	Always
1	He/she doesn't give up easily.	0	1	2	3
2	When things get hard he/she says, "I can do it!"	0	1	2	3
3	Failure leads him/her to try harder until the task is finished.	0	1	2	3
4	He/she views failure as an important part of learning.	0	1	2	3
5	He/she believes that you can do anything if you try hard enough.	0	1	2	3
6	He/she is afraid of failure.	0	1	2	3
7	When things get hard he/she avoids the work.	0	1	2	3
8	He/she believes that hard work usually does not pay off.	0	1	2	3
9	He/she is fast to give up on a task.	0	1	2	3
10	He/she sees failure as proof of a person's limitations.	0	1	2	3

Figure 5.3 Measure of Mindset: Teacher & Parent Version

Informing Teachers and Parents

PASS scores obtained from the CAS2, CAS2: Brief, or the CAS2: Rating Scale provide an explanation of how a young person learns and makes a prediction for future success. A strength or weakness in any of the four neurocognitive abilities must be taken into consideration when the learning environment is examined and when instruction or intervention is delivered. The goal is to select teaching methods with consideration of the PASS demands of the task and the correspondence of those demands with the PASS profile of the learner. This requires that the PASS processes involved in the teaching method, program, or lesson plan must be understood. For example, a child who is low in successive processing will likely have problems learning from a phonicsbased reading program that demands blending sounds to read words. Therefore, when equipped with information about a student's PASS scores, the teacher can select methods that more efficiently match the characteristics of the learner. A critical part of

this process is to examine the academic and PASS demands of any learning environment to determine whether a particular skill can be directly remediated, as well to determine appropriate strategies that can facilitate learning.

Simultaneous Processing Explained

Simultaneous processing is a mental process used to relate separate pieces of information as a group or see how parts are related to a whole. Usually Simultaneous processing is seen in tasks that involve spatial skills, such as using blocks to build a design, doing geometry, seeing patterns in numbers, seeing a group of letters as a word, understanding words as a whole, understanding a sentence as part of a paragraph, and reading comprehension. The spatial aspect of Simultaneous processing includes the perception of an object as a whole and seeing patterns. Simultaneous processing is involved in reading comprehension in that it requires the integration and understanding of word relationships, prepositions, and inflections so that a person can derive meaning based on the whole idea. Children good at Simultaneous processing easily recognize themes and how facts fit together to form a complete whole.

Example of Simultaneous Processing in the Classroom

Simultaneous processing is involved in the comprehension of spoken and written language. For example, the sentence "The black cat ran" requires a student to relate the element "cat" with the element "blackness" and relate it to the action "run." Grouping the words *flowers*, *birds*, *rocks*, and *clouds* into a group of "things you can find outside" uses Simultaneous processing because it requires the student to see how each of those things relates to the others and to the statement.

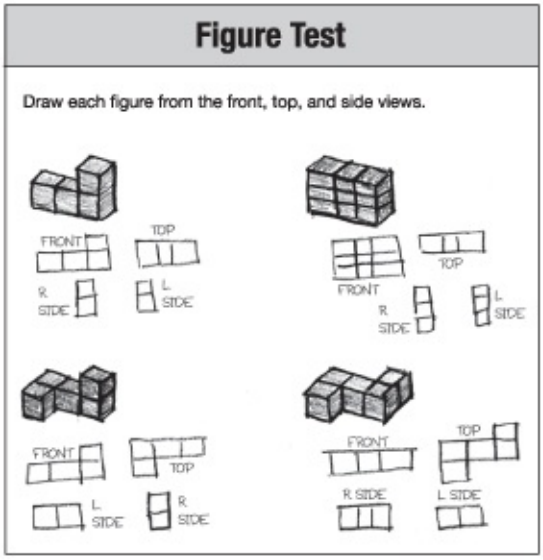

Figure 1. An example of an activity that requires Simultaneous processing.

Simultaneous processing is required for things to be seen as a whole. To recognize a shape in a collection of lines that form a cube requires Simultaneous processing, as does drawing a map (see Figure 1). Drawing or making a map requires grasping the relationship of one place to another in a meaningful way, rather than seeing a map as a bunch of shapes and lines.

A simple but common task for children in school is to draw pictures, often pictures about a story they have written or read. Simply drawing the picture and seeing how each part, color, and design fits to make the artwork meaningful requires Simultaneous processing. A drawing that includes all of the necessary parts in a well-organized group involves Simultaneous processing. Relating the picture to what was read or written requires the student to understand the story and how its parts are interrelated.

Simultaneous Processing Explained *(continued)*

Simultaneous processing describes several activities.

- Relating parts into a comprehensive whole to see how things fit together
- Understanding relationships among words, pictures, or ideas
- Working with spatial relationships
- Seeing several things or integrating words into a larger idea

Here are some classroom problems related to Simultaneous processing:

- Failure to recognize sight words quickly
- Failure to interpret word, sentence, or passage meaning
- Difficulty with seeing the shapes of words or working with spatial tasks
- Failure to see patterns in text or math problems
- Failure to comprehend math word problems

Strategies for Developing Simultaneous Processing

- Do matching and categorization games (e.g., pictures, words), including opposites, with the child
- Show the child reproductions of figures in rotation and from different perspectives
- Have the child practice on jigsaw puzzles, hidden picture worksheets, and building three-dimensional objects
- Ask the child to supply missing details in stories
- Encourage rhyming
- Have the child use and create maps, both geographical and contextual
- Teach the child how to summarize stories or articles

How Is Simultaneous Processing Measured?

Simultaneous processing can be measured using the Cognitive Assessment System (CAS). The CAS gives an overall score and separate PASS scores for the four cognitive scales, including Simultaneous processing. The average score is 100. Scores below 90 are considered below average.

Resources

Kirby, J.R., & Williams, N.H. (1991). *Learning problems: A cognitive approach*. Toronto: Kagan & Woo Limited.
Naglieri, J.A. (1999). *Essentials of CAS assessment*. New York: John Wiley & Sons.
Naglieri, J.A., & Das, J.P. (1997). *Cognitive Assessment System*. Itasca, IL: Riverside.

Figure 5.4 Handout for Teachers That Describes Simultaneous Processing

Figure 5.4 shows a handout for teachers that describes Simultaneous processing (Naglieri & Pickering, 2010), enhancing their understanding of the relationships between a student's PASS

profile and the PASS demands of the academic tasks the student is good at or struggling with. This analysis should be conducted with two important issues in mind: (1) most tasks involve more than one PASS ability and (2) the role of PASS processes can change as the task is learned.

It is important to recognize that many academic tasks will require more than one PASS process (Naglieri & Rojahn, 2004). The key is to see how the student's PASS weakness relates to each part of the task to be learned. For example, when reading a paragraph, a student who is low in Planning may do poorly because of a failure to consider all the possible meanings of the text. A student who is poor in Simultaneous processing may do poorly because he or she cannot see how to combine all the information into a cohesive whole to arrive at the overall meaning. Another person low in Successive processing may have trouble remembering the order of events described in the paragraph and will arrive at the wrong conclusions. Finally, a student low in Attention will likely miss the subtle details and therefore fail to understand the text. Knowing the PASS strengths and weaknesses and the demands of the academic task will help the teacher anticipate the obstacles and encourage the student to approach the task with appropriate consideration of the best ways to proceed.

DON'T FORGET 5.3

PASS cognitive processes are very important when learning something new. Once the knowledge becomes well learned, it is a skill and can be demonstrated with less reliance on PASS.

A second important consideration is the changing role of PASS neurocognitive abilities over the course of learning. There are two aspects to this progression. First, Goldberg (2009) stated that the PASS processes will be more involved at the initial stages of learning when knowledge is limited. When knowledge is well learned and can be used without much cognitive effort, then the knowledge becomes a skill. This means that educators need to recognize the student's strengths and weaknesses in each of the PASS neurocognitive abilities when any new activity is first being presented. This was previously illustrated by Figure 3.4.

Another important consideration is that knowledge of PASS scores, when paired with specific academic processing demands, provides teachers with much more precision in selecting appropriate interventions for the most challenging learners. For instance, a younger student with weaknesses in Simultaneous processing and reading may benefit from teaching word families in a manner that helps the child hear and see the similarities of words (e.g., *hat, sat, bat, mat,* etc.). It is important to note that over the course of learning, as a new task transitions from a novel endeavor into something that is known, and ultimately to a welllearned skill, then the PASS processing demands will likely change as well. Consequently, targeted intervention strategies will also change over time.

Finally, the fourth important consideration is that despite a PASS weakness, students *can* learn. The key is to initially work around the weakness so that the student experiences some success

and then to teach the student to recognize that when learning is hard to "think smart and use a plan!" (Naglieri & Pickering, 2010).

Providing Educational Services

Parents should be aware of a few basic tenets of the special education process when their child is referred for an assessment. The standard practice of student assessment is based on making special education qualification decisions according to a set of prescribed criteria as outlined by the Individuals with Disabilities Act (IDEA). Consequently, school psychologists often select a battery of tests designed to meet eligibility decision requirements as opposed to specifically crafting an assessment battery to generate targeted intervention suggestions. Oftentimes, intervention selection remains an afterthought or at best is loosely tied in with targeted test results. Herein lies the difference between an *administrative* test battery used primarily to qualify children for special education services versus an *integrative* test battery used to determine targeted processing strengths and weaknesses that can be parlayed into tangible and specific interventions.

DON'T FORGET 5.4

The "basic psychological processes" described in the definition of a specific learning disability can be operationalized using the CAS2.

Traditionally, most evaluators have used global academic achievement scores to determine an overall reading, math, or written language composite score. These scores represent a compilation of individual achievement skills in a particular academic area. Composite scores are often needed, and in some cases are required, to establish a significant discrepancy between a child's overall cognitive ability in order to meet basic special education eligibility requirements. The basis for this method of identifying learning disorders—the *discrepancy method*—does not focus on specific neurocognitive processes inherent in reading, writing, or mathematics but rather examines global attributes of achievement in comparison to global attributes of cognition (Feifer & Della Toffalo, 2007). Regardless of whether this method is sufficient to make qualification decisions for special education services or not, we suggest that this approach offers teachers little in the way of generating targeted academic goals and recommendations individualized in a manner that best meets a student's learning needs.

With the reauthorization of IDEA in 2004, examiners no longer need to rely on significant discrepancies between aptitude and achievement in order to determine eligibility for special education services. Instead, alternative approaches focusing on the underlying cognitive processes a child uses to learn information can be cataloged and measured to determine the presence of a specific learning disorder. Because the CAS2 is a comprehensive measure of basic psychological processes for learning, and the Feifer Assessment of Reading (FAR; Feifer, 2015) is a comprehensive measure of basic cognitive and linguistic processes used for reading, both can be paired together to more precisely determine a child's learning needs as

well as target specific recommendations customized to the child. This process empowers teachers to make sound educational decisions about children.

ASSESSMENT OF READING

The FAR is composed of 15 individual subtests measuring various aspects of phonological development, orthographical processing, decoding skills, morphological awareness, reading fluency, and comprehension skills. The FAR measures four specific subtypes of reading disorders, all of which are derived from deficits in one or more PASS basic psychological processes.

Phonological Index:

Students who have difficulty with the phonological components of reading that underscore accurate word recognition skills are exhibiting *dysphonetic dyslexia*. From a neuropsychological standpoint, the supramarginal gyrus, located at the juncture of the temporal and parietal lobes, is a key brain region responsible for the temporal ordering of phonological information (McCandliss & Noble, 2003; Sandak et al., 2004; Shaywitz, 2004). The primary PASS process needed for sequencing letters together to recognize words is Successive processing. The following reading intervention programs are tailored toward learning moreeffective sequencing of sounds.

Rapid Reference 5.1

Explicit Phonics Programs to Improve Successive Processing of Sounds

Wilson Reading System

- Corrective Reading and REACH System

Read 180

LEXIA Strategies for Older Students

Alphabetic Phonics (OrtonGillingham)

- SRA Corrective Reading
- Earobics II
- LiPS Seeing Stars
- LEXIA Primary Reading
- Horizons
- Fast Forward I
- Fast Forward II

Earobics I

Saxon Phonics Program

Ladders to Literacy

Road to the Code

- SIPPS
- PhonoGraphics
- Success for All
- Scott Foresman Early Intervention Reading
- Foundations

Fluency Index:

Subtests that make up the FAR's Fluency Index address the *surface dyslexia* subtype of reading disorder. These students often struggle with reading speed and automatically recognizing words in print primarily because of poor orthographic skills. In other words,

these students have difficulty processing the entire visual word form as a whole and struggle reading words that are not phonetically decodable (e.g., *debt, onion, yacht,* etc.). Simply put, these children are soundbysound, letterbyletter readers, which greatly slows them down and hinders fluency. The neural circuitry involved with surface dyslexia includes the left angular gyrus, an important brain region that plays a role in the orthographic assembly of the visual word form (Sakurai, Asami, & Mannen, 2010). The primary PASS process needed for the visualspatial recognition of the printed word form is Simultaneous processing. The following reading intervention programs are tailored toward increasing reading speed and fluency by teaching students to develop automatic word recognition skills, relying on more Simultaneous processing of the printed word form.

Rapid Reference 5.2

Reading Fluency Programs to Improve Simultaneous Processing of Words

- Academy of Reading
- Wilson Reading System
- Laubauch Reading Series
- Read 180
- Read Naturally
- Great Leaps Reading
- Quick Read
- RAVEO
- Fast Track Reading
- Destination Reading
- Reading Recovery
- Early Success
- Fluency Formula

Mixed Index:

The third reading disorder subtype, often referred to as *mixed dyslexia,* is the most severe type of reading disability for students. Generally, these readers have difficulty across the language spectrum, which is characterized by a combination of poor phonological

processing skills, slower rapid and automatic word recognition skills, poor orthographic processing, and inconsistent text attention (Feifer & Della Toffalo, 2007). In fact, these readers are characterized by numerous PASS processing deficits including poor Successive processing to sequence letters, poor Simultaneous processing to recognize the entire printed word form, and poor Attention to recognize word cues in the passage to derive meaning from print. Oftentimes, these students require an IEP that includes one or more of the aforementioned reading programs (see Table 5.1). The key is to develop a balanced literacy program that focuses on using the student's strengths to bypass a particular weakness.

Table 5.1 Balanced Literacy Strategies and PASS for Mixed Dyslexia

Reading Process	**PASS Process**
Phonemic processing	Successive processing
Orthographic processing	Simultaneous processing
Morphological processing	Successive processing
Reading fluency	Simultaneous processing
Vocabulary development	Attention
Comprehension strategies	Planning and Attention
Spelling patterns	Successive processing

Rapid Reference 5.3

Mixed Dyslexia Interventions for Students With Poor Simultaneous and Successive Processing

Balanced Literacy:

The key to developing reading success with any student is to incorporate a balanced literacy approach. This is especially critical with students possessing mixed dyslexia, because there are often combinations of deficits including poor phonological processing skills and poor fluency skills resulting from poor Successive and Simultaneous processing. Using programs such as Read 180 or Failure Free Reading may yield more positive results than simply overrelying on phonicsbased programs that overemphasize Successive processing.

Use Strengths to Bridge Weaknesses:

Most students with severe forms of dyslexia do not respond to conventional remediation programs because of atypical development in various regions of the brain responsible for modulating the phonological aspect of reading (Noble & McCandliss, 2005; Shaywitz, 2003). Therefore, use cognitive strengths such as in Planning or Attention, which is more of a topdown methodology, to teach reading by emphasizing morphological development and vocabulary instruction.

Motivation and Confidence:

Every effort should be made to keep the reading process as enjoyable and entertaining as possible. Have students practice reading 20 minutes per day on highinterest books that they select.

Comprehension Index:

The final reading disorder subtype involves deficits in *reading comprehension* skills. In essence, these readers struggle to derive meaning from print despite good reading mechanics. Children with reading comprehension difficulties often display marked deficits on certain executive functioning skills, especially planning and working memory skills, both of which are modulated by frontal lobe functioning (Crews & D'Amato, 2009; Cutting, Materek, Cole, Levine, & Mahone, 2009; Reiter, Tucha, & Lange, 2005). The primary PASS processes needed to derive meaning from print are Planning, which helps students devise a strategy for the selforganization of verbal material, and Attention, which recognizes other cues in the passage to derive meaning from print. The following comprehension strategies are offered to assist children who struggle with both Planning and Attention.

Rapid Reference 5.4

Reading Comprehension Strategies to Improve Planning and Attention

Stop and Start Technique:

The student reads a passage out loud, and every 30 seconds the teacher says "stop" and asks questions about the story. Eventually the time interval is lengthened.

Directional Questions:

Ask questions at the beginning of the text instead of the end so students can become more directional readers.

Story Maps:

This is a prereading activity in which graphic organizers are used to outline and organize information prior to reading the text.

Narrative Retelling:

Have the child retell the story after reading it aloud.

Read Aloud:

Reading out loud enables students to hear their own voices and can facilitate working memory.

Multiple Exposure:

Encourage students to skim the material on reading for the first time with an emphasis on chapter and text headings. Read for detail on the second exposure of the text.

Active Participation:

Encourage active reading by getting children in the habit of notetaking or putting asterisks next to important material in the text.

Create Questions:

Have students write their own test questions about the material.

Reduce Anxiety:

Anxiety inhibits working memory and leads to ineffective recall. Children who are anxious about reading out loud in front of their classmates should be provided an opportunity to read in a "safety zone" in class. This may also help to eliminate distractions as well.

Practice Terminology:

Practice defining new terms and concepts prior to reading material with dense language. Vocabulary enrichment is often the key to improving comprehension.

CAS2 AND MATHEMATICS

The CAS2 can also be applied to mathematics to diagnose and remediate math learning disabilities. In fact, the four cognitive abilities measured by the CAS2 can be integrated with the Feifer Assessment of Mathematics (FAM; Feifer, 2016) to specifically target the mathematical needs of children. The FAM is a comprehensive test of mathematics designed to examine the underlying processes that support the acquisition of proficient math skills. The FAM is comprised of 19 individual subtests measuring various aspects of factretrieval skills, numeric and spatial memory, perceptual estimation skills, linguistic math concepts, and core number sense development. When paired with the CAS2, the FAM can assist practitioners to not only determine the presence of a general math learning disability (MLD) but also determine the specific subtype of dyscalculia in order to better inform intervention decisions. The following mathematical subtypes provide the theoretical framework for integrating the FAM and CAS2.

Verbal Index

The verbal subtype of dyscalculia consists of students who have difficulty retrieving or recalling stored mathematical facts of overlearned information. In essence, there is a breakdown in the verbal representations of numbers and the inability to use languagebased procedures to assist in automatic factretrieval skills. In fact, these students often have difficulties in reading and spelling and language retrieval as well (Ashkenazi, Black, Abrams, Hoeft, & Menon, 2013). Verbal dyscalculia does not necessarily hinder a student's ability to appreciate numeric qualities and understand mathematical concepts or detract from making comparisons between numbers, but it does hinder a student's ability to encode and retrieve overlearned math facts, such as singledigit addition, singledigit subtraction, singledigit multiplication, and singledigit division.

These students often present a profile on the CAS2 of poor Planning and poor Simultaneous processing. Essentially, mathfact retrieval is often approached without a specific plan for retrieving the information. Furthermore, these students struggle to store the information as a unique whole (e.g., 7×5 = 35), which tends to reflect poor Simultaneous processing. Specific interventions include the following.

Rapid Reference 5.5

Interventions for Verbal Dyscalculia

- Distinguish between reciting *number words* and *counting* (map symbol to spatial value, not verbal tag).
- Develop a forward number word sequence (FNWS) and backward number word sequence (BNWS) to 10, 20, and 30 without counting back. This helps develop better number line fluency skills and ultimately better factretrieval skills.
- Develop a base10 counting strategy whereby the child can perform addition and subtraction tasks involving 10s and 1s. Learning to chunk numbers will use Successive processing strategies to bridge Simultaneous processing weaknesses.
- Reinforce the language of math by reteaching quantitative words such as *more, less, equal, sum, altogether, difference,* and so on.

Procedural Index

The procedural subtype of dyscalculia represents one or more deficits in the ability to count, order, or sequence numbers or sequence mathematical procedures (e.g., remembering the algorithm) when problemsolving. Just as younger children must ultimately link phonemes with graphemes in order to learn the phonological code for reading, children begin to develop mathematical knowledge and skills in much the same manner by learning to link nonsymbolic information with numerical symbols. After all, the meaning of numbers is ultimately represented by their subsequent relationships to other numbers within the broader number system (Cowan & Powell, 2014). Consequently, when there is a breakdown in the procedural system, the syntactical arrangement and execution of arithmetical procedures often becomes compromised. The procedural subtype not only underscores serial counting but also is involved in recalling the sequences of steps necessary to perform multidigit tasks such as long division, multiplying or dividing multidigit numbers, as well as working with fractions and decimals. These students often have a PASS profile on the CAS2 of poor Successive processing as well as limited Attention, which often makes them lose their place while counting on a number line. Specific interventions include the following.

Rapid Reference 5.6

Interventions for Procedural Dyscalculia

- Create a class setting that is free from anxiety. Anxiety limits working memory and the ability to use Successive processing strategies.
- Use mnemonic strategies. For instance, long division requires a student to divide, multiply, subtract, and bring down. Remember this sequence with **d**ad, **m**om, **s**ister, **b**rother).
- Talk aloud all regrouping strategies.
- Use graph paper to line up equations.

Semantic Index

The third subtype of dyscalculia is referred to as the s*emantic subtype*, which consists of visualspatial and conceptual components. A core deficit within this subtype is an inability to decipher magnitude representations among numbers (Dehaene, 2011). The semantic subtype can affect symbolic as well as nonsymbolic representation of numbers, and therefore it hinders a variety of mathematicalrelated skills. For instance, the *nonsymbolic* representations of math refer to the visualspatial processes needed to perform tasks such as estimation skills, patternrecognition skills among objects, or even aligning numbers in columns when problemsolving. These types of visually mediated tasks often require Simultaneous processing as measured by the CAS2.

The semantic subtype also involves math difficulties because of a poor conceptual understanding of a mathematical principle. These students often have poor number sense and struggle connecting the actual numeric symbol with its corresponding value (Wong, Ho, & Tang, 2015). The semantic understanding of numbers is needed in order to develop strong quantitative reasoning skills; otherwise, students tend to simply memorize equations void of any real meaning or application possibilities. Consequently, these students tend to have poor Planning ability as measured by the CAS2 and lack a plan of attack when engaged in quantitative reasoning tasks. For example, the ability to transcode challenging mathematical equations into more palatable forms of operations requires good planning skills. Take the equation $9 \times 16 = 144$. Most children would opt to use paper and pencil to determine the answer is 144 and would be hardpressed to solve this equation very quickly. However, strong planning enables a student to convert the problem to a base 10 format of $10 \times 16 = 160$, then subtract 16, and arriving at 144 much quicker and often without the need for paper and pencil. The ability to deploy a particular mathematical strategy (Planning) is often lacking with students who have poor symbolic representation of numbers and therefore lack a basic number sense. Specific interventions may include the following.

Rapid Reference 5.7

Interventions for Semantic Dyscalculia

- Teach students to think in *pictures* as well as *words*.
- Have students explain their strategies when problemsolving to expand problem solving options.
- Teach estimation skills to enable effective previewing of responses.
- Have students write a math sentence from a verbal sentence.
- Construct incorrect answers to equations and have students draw a picture to demonstrate why the problem is wrong.

Rapid Reference 5.8

Feifer Assessment of Reading

Feifer Assessment of Reading	Planning	Attention	Simultaneous	Successive
Phonological Index				X
Phonemic Awareness				X
Nonsense Word Decoding				X
Isolated Word Reading Fluency			X	X
Oral Reading Fluency			X	X
Positioning Sounds				X
Fluency Index			X	
Rapid Automatic Naming			X	
Verbal Fluency	X			
Visual Perception		X		
Irregular Word Reading Fluency			X	
Orthographical Processing		X	X	
Comprehension Index	X	X		
Semantic Concepts	X		X	
Word Recall	X	X		

Print Knowledge		X		
Morphological Processing				X
Silent Reading Fluency: Comprehension	X	X	X	

Feifer Assessment of Mathematics

Feifer Assessment of Mathematics	Planning	Attention	Simultaneous	Successive
Procedural Index				X
Forward Number Count		X		X
Backward Number Count		X		X
Numeric Capacity		X		X
Sequences	X			X
Object Counting		X		X
Verbal Index			X	
Rapid Number Naming			X	
Addition Fluency		X	X	
Subtraction Fluency		X	X	
Multiplication Fluency		X	X	
Division Fluency		X	X	
Linguistic Math Concepts	X		X	
Semantic Index	X		X	
Spatial Memory		X	X	
Equation Building	X		X	X
Perceptual Estimation	X		X	
Number Comparison		X	X	
Addition Knowledge	X	X		
Subtraction Knowledge	X	X		
Multiplication Knowledge	X	X		
Division Knowledge	X	X		

Discrepancy/Consistency Method of Interpretation

DON'T FORGET 5.5

The Discrepancy/Consistency method of SLD determination tells you if the child has significant variability in PASS as well as achievement test scores and which PASS weakness is associated with the academic difficulty.

Examiners are encouraged to follow the Discrepancy/Consistency Method of interpretation to determine eligibility for special education services using the FAR, FAM, and CAS2. As previously stated, the identification of a basic psychological process begins with the administration of the CAS2, because one or more of the four processing scores needs to be substantially below average and discrepant from the student's average PASS score. Second, there needs to be consistency between the poor processing score(s) and lower scores in the academic skill(s) in question. With respect to reading, SLD statute defines these areas as consisting of basic reading skills, reading fluency skills, or reading comprehension skills. Third, there must be also be a consistency between lower scores on, for example, a FAR reading index score and lower cognitive processing as indicated on the CAS2. For instance, if a student has relatively poor Simultaneous processing and scores relatively low scores on the Fluency index of the FAR, this would be *indicative* of an SLD consistent with *surface dyslexia*. The following example illustrates the aforementioned discussion as well as yields more specific and targeted recommendations customized for the child.

Reason for Referral:

Nelson is a 9yearold fourthgrade student who was referred for a comprehensive psychological evaluation because of concerns regarding his overall reading skills and difficulty completing most daily tasks in a timely manner.

Background Information:

Nelson has been attending Stony Brook Elementary School since kindergarten and began receiving targeted academic interventions in the first grade. According to school reports, Nelson was having difficulty acquiring basic soundsymbol associations, and his reading fluency was measured at just 27 correct words per minute at the completion of first grade. Nelson began receiving Tier II reading support services in second grade and worked with the school's reading specialist for approximately 30 minutes each day. He responded well to his reading intervention services and completed secondgrade reading approximately 57 words per minute accurately. Nevertheless, there were additional academic concerns on entering third grade. For instance, Nelson was described as having difficulty with spelling and written language skills, struggled with math fact retrieval skills, and was inconsistent with reading comprehending skills. There were no reported attention or behavioral concerns and his teacher indicated that Nelson often put forth a good effort each day. However, he continued to struggle keeping pace with his peers and often failed to complete his work in a timely manner. The school's child development team conveyed a meeting prior to the onset of fourth grade and recommended a comprehensive psychological

evaluation.

Neurocognitive Abilities:

Nelson was administered the CAS2 to assess various aspects of cognitive functioning and problemsolving efficiency (see Table 5.2). As previously identified, this test evaluates four kinds of neurocognitive abilities based on the PASS (Planning, Attention, Simultaneous, and Successive) theory of cognitive processing. All four neurocognitive abilities combine to yield an overall or composite measure of cognitive functioning. Standard scores between 90 and 110 are considered to be in the average range.

Composite Score:

Nelson's overall CAS2 composite score was 89, which was in the below average range of functioning and at the 23rd percentile compared to peers. His individual cognitive processing ability scores were as follows.

Table 5.2 Nelson's CAS2 Scoring

PASS Scales	Scaled Score	Percentile	Ability Range
CAS2 Planning: The ability to apply a strategy and self monitor performance while working toward a solution	94	34	Average
CAS2 Attention: The ability to selectively focus on a stimulus while inhibiting responses from competing stimuli	98	45	Average
CAS2 Simultaneous Processing: The ability to reason and problemsolve by integrating separate elements into a conceptual whole, often involving visualspatial tasks	74	4	Very low
CAS2 Successive Processing: The ability to put information into a serial order or particular sequence	90	25	Average
CAS2 Total Composite Score	89	23	Below average

Planning:

Nelson's Planning processing score reflects his ability to make decisions about how best to complete the tests, use strategies, monitor the effectiveness of strategies, change the plan when needed, and work efficiently. He earned a Planning score of 94, which was in the average range of functioning and at the 34th percentile compared to peers. He approached many problemsolving tasks with a specific search strategy (e.g., worked from bottom to top or left to right) based on the demands of the task. Nelson exhibited good Planning strategies and organizational skills, worked very diligently throughout the test, and focused his attention well to the task at hand. There were no weaknesses apparent.

Attention:

Nelson's Attention score reflects his ability to focus his thinking and resist distractions. He earned an Attention score of 98, which was in the Average range of functioning and at the 45th percentile compared to peers. He had little difficulty with response inhibition and was able to curb his impulses and refrain from naming or reading items when instructed to state a conflicting response instead. There were no weaknesses observed.

Simultaneous:

Nelson's Simultaneous score reflects the ability to integrate separate elements into a conceptual whole and often requires strong visualspatial problemsolving skills. His Simultaneous processing score of 74 was a significant weakness and in the very low range of functioning at the 4th percentile compared to peers. Nelson worked very slowly and deliberately on these tasks and often struggled with more difficult items. Lower Simultaneous processing can directly hinder a variety of academic skills such as spelling (difficulty conjuring up a visual spatial image of the printed word form), reading fluency and speed (difficulty automatically recognizing words as a conceptual whole), and mathematics (visualizing numbers).

Successive:

Nelson's score on the Successive processing scale reflects his ability to repeat information such as words or sentences in order and understanding verbal statements when the meaning was dependent on the sequence of the words. Nelson's overall Successive score was 90, which in the average range of functioning and at the 25th percentile compared to peers. This score suggests adequate ability to remember information in order and sequencing symbols, both of which are important for academic tasks such as decoding words when reading, sounding out words when spelling, memorizing basic math facts, and math computation skills. There were no significant weaknesses observed.

Cognitive Summary:

Nelson demonstrated adequate general cognitive abilities, with most PASS processing scores within the average range. However, a relative weakness was noted on the Simultaneous processing scale. Lower scores in this area can hinder mathematical problemsolving, visualizing words when spelling, and reading fluency skills.

Academic Measures:

Nelson was administered the Kaufman Test of Educational Achievement, Third Edition (KTEAIII) to assess his reading, math, spelling, and written language skills. His academic achievement scores in reading were as shown in Table 5.3 (mean = 100).

Table 5.3 Nelson's Scores on the KTEAIII Reading Subtests

Reading	Age Norms	Percentile	Range
Letter Word Recognition: The student reads isolated letters and words of gradually increasing difficulty.	81 ± 5	10 53	Below average
Nonsense Word Decoding: The student applies phonics and decoding skills to madeup words of increasing difficulty.	90 ± 5	25	Average
Reading Comprehension: The student reads a word and points to its corresponding picture or reads a simple instruction and responds by performing the action.	83 ± 10	13	Below average
Silent Reading Fluency: The student is required to read as many statements as possible in 2 minutes and must respond either “yes” or “no” as to whether each statement is valid.	80 ± 11	9	Below average
KTEAIII Reading Composite Score	81 ± 6	10	Below average

Table 5.4 Nelson's Scores on the KTEAIII Math Subtests

Math	Age Norms	Percentile	Range
Math Concepts and Applications: The student responds orally to applied math problems involving number concepts, time, money, measurement, and data analysis.	96 ± 6	39	Average
Math Computation: The student solves math equations in the response booklet including addition and subtraction.	87 ± 10	19	Below average
Math Fluency: This is a timed task requiring the student to solve as many singledigit addition, subtraction, multiplication, and division problems in a minute.	89 ± 11	23	Below average
KTEAIII Math Composite Score	90 ± 6	25	Average

Nelson's overall reading composite score was 81 ± 6, which was in the Below Average range of functioning and at the 10th percentile compared to peers. He struggled with most aspects of the reading process and was very inconsistent with his overall word identification skills (Letter Word Identification). A relative strength was Nelson's ability to apply decoding skills to unfamiliar words in print (Nonsense Word Decoding). In summary, Nelson was a slowerpaced and dysfluent oral reader with inconsistent text comprehension skills (Reading Comprehension) as well.

Nelson's overall math composite score was 90 ± 6, which was in the average range of functioning and at the 25th percentile compared to peers (see Table 5.4). He demonstrated

an adequate conceptual understanding of mathematics (Math Concepts and Applications) and was able to read and interpret a graph, recognize a number pattern, solve problems involving elapsed time, and make change from a dollar. However, his automaticity for basic number facts (Math Fluency) was a little slower paced, and he occasionally misread math operational signs. Last, Nelson's mathcalculation skills were a bit inconsistent (Math Computation), because he was able to add and subtract twodigit equations but often lost his place when borrowing or regrouping and was unable to solve long division or twodigit multiplication equations.

Nelson's written language composite score was 87 ± 6, which was in the below average range and at the 19th percentile compared to peers (see Table 5.5). He was righthanded with an adequate tripod grasp. Nelson worked very diligently when writing, and was extremely focused and ontask during extended writing tasks. Nevertheless, he often made careless miscues such as omitting ending punctuation, omitting articles and short words (e.g., *is*, *and*, *of*, etc.), and did not always capitalize the first words of sentence during a structured writing task (Written Expression). In addition, there were noted grammatical errors in his sentence structures, and his spelling skills were a bit inconsistent, though phonetically readable.

Table 5.5 Nelson's Scores on the KTEAIII Writing Subtests

Writing	**Age Norms**	**Percentile**	**Range**
Written Expression: The student completes a series of writing tasks in the context of a storybook format. Tasks include writing from dictation, adding punctuation and capitalization, combining sentences, filling in the blank, and essay writing.	91 ± 10	27	Average
Spelling: The student is required to spell words of increasing difficulty dictated by the examiner.	86 ± 5	18	Below average
Writing Fluency: The student has 5 minutes to write as many sentences as possible describing various pictures.	88 ± 14	21	Below average
KTEAIII Written Language	87 ± 6	19	Below average

Academic Summary:

Nelson's overall reading and written language skills were not commensurate with grade level expectations. He had adequate decoding skills but was a slowerpaced and dysfluent oral reader with inconsistent passage comprehension skills. There were also noted spelling miscues, though his efforts were phonetically readable, and he tended to make numerous grammatical errors when writing.

Academic Processing:

Nelson was administered the Feifer Assessment of Reading (FAR), a comprehensive reading test designed to examine the underlying cognitive and linguistic processes that support proficient reading skills. See Table 5.6 for the obtained scores (mean = 100).

Table 5.6 Nelson's Scores on the Feifer Assessment of Reading (FAR)

FAR Index	Standard Score (95% CI)	Percentile	Qualitative Descriptor
Phonological Index	90 (±5)	25	Average
Fluency Index	73 (±7)	3	Moderately below average
Mixed Index	81 (±5)	10	Below average
Comprehension Index	97 (±8)	42	Average
FAR Total Index	84 (±5)	14	Below average

FAR Total Index:

Nelson obtained a FAR total index score of 84 ± 5, which is in the below average range of functioning and at the 14th percentile compared to peers. The following reading indices were obtained (mean = 100).

Phonological Index:

Nelson's Phonological Index score was 90 ± 5, which was in the average range and at the 25th percentile compared to peers. His overall phonemic skills were emerging, because he was able to blend, segment, and manipulate sounds in words. Nelson also had little difficulty when applying decoding skills to familiar and unfamiliar words in print, though he worked a little slowly when reading an isolated list of decodable words.

Fluency Index:

Nelson's Fluency Index was a significant weakness, because he scored 73 ± 7, which was in the moderately below average range and at the 3rd percentile compared to peers. He worked slowly when rapidly identifying objects and letters, demonstrated poor text orthography skills, and had difficultly reading an isolated list of phonologically irregular words (e.g., *yacht*, *onion*, *debt*, etc.). Lower scores on rapid naming and text orthography tasks often stem from poor Simultaneous processing and an inability to visualize the entire printed word form as a unique whole. This can lead to inconsistent spelling as well as slower printidentification skills when reading.

Comprehension Index:

Nelson's Comprehension Index score was 97 ± 8, which was in the average range and at the 42nd percentile compared to peers. His overall vocabulary and language development skills were a significant strength. In addition, his verbal memory skills were also well developed, suggesting that Nelson had strong language and working memory skills to facilitate text comprehension. Last, his welldeveloped Planning and

Attention abilities enabled him to remember specific details in the stories, though weaknesses with Simultaneous processing seemed to hinder his ability to understand the big picture and comprehend more abstract questions about the story.

FAR Summary:

Nelson's poor reading fluency skills stemmed from limitations with text orthography, which involves rapidly processing the entire printed word form. Limitations with text orthography are primarily because of poor Simultaneous processing. Weaknesses with Simultaneous processing seemed to hinder his ability to comprehend more abstract elements of the text, though his strong Planning and Attention did help facilitate remembering more detailed aspects of the story. Nelson's slower reading speed, difficulty reading phonetically irregular words, and poor Simultaneous processing were consistent with the profile of a student with surface dyslexia.

Summary:

In summary, Nelson's cognitive ability scores were mostly average with the exception of a significant weakness observed with his Simultaneous processing scale of the CAS2. This suggested he had considerable difficulty integrating separate elements of a problem into a conceptual whole. His poor Simultaneous processing ability is significantly hindering reading and written language skills. For instance, his spelling efforts were phonetically readable, but because of his inability to visualize the printed word form, they were often incorrect. In terms of his reading, his poor Simultaneous processing skills manifested through limitations with text orthography. This involves processing the entire printed word form rapidly and automatically, with limitations often leading to an overreliance on Successive processing, or soundbysound reading, and poor fluency skills. In addition, limitations with Simultaneous processing also hindered his ability to comprehend more abstract elements of the text. Nelson presented the academic and cognitive processing profile of a student with Surface Dyslexia. The following visual depiction of Nelson's processing strengths and weaknesses are noted in Figure 5.5 by way of the Discrepancy/Consistency Method.

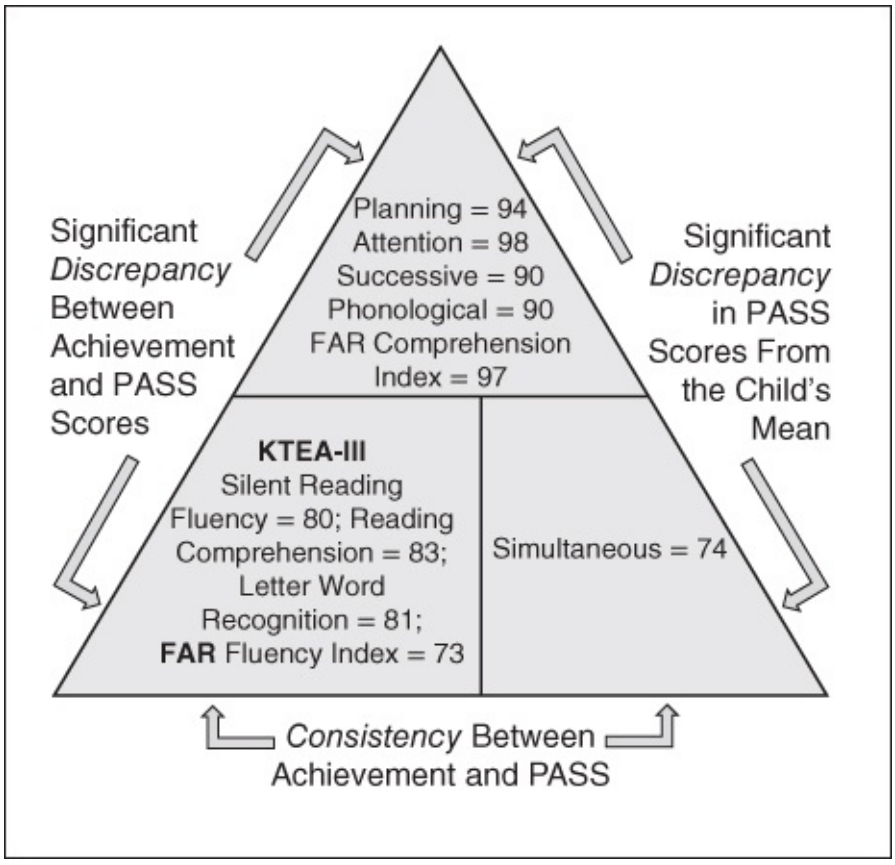

Figure 5.5 Nelson's Discrepancy/Consistency Method of SLD Results

Recommendations for School

1. Nelson would benefit from a targeted reading fluency intervention in order to increase text automatic recognition and fluency (e.g., Read Naturally, Great Leaps, RAVEO, etc.).
2. Nelson's orthographic processing skills were somewhat weak. Colorcoding letter various syllable and sound subtypes, particularly vowel diphthongs in phonetically irregular words, may be very helpful (e.g., *c**au**tion, danger**ou**s,* etc.).
3. Nelson may benefit from targeted writing activities to help reinforce letter and word recognition skills. Specific activities such as identifying which of three sight words is spelled correctly (e.g., *wuz, whas, or was*) may help to develop automaticity recognizing vowel patterns in words.
4. Nelson should benefit from using graphic organizers, story maps, and other prewriting activities to assist him when organizing his thoughts when writing. In addition, he should have access to a word bank of words to assist him with spelling as well.
5. Nelson might benefit from having access to a Franklin Word Speller and other technology devices and to assist with his overall spelling skills.
6. In order to improve Simultaneous processing and facilitate textvisualization skills, have Nelson practice spelling words with white space in between each syllable in the word. Next, frame each letter in a box similar to the letter size. For example, the word *fascinate* would be written as *fas cin ate*. The visual space draws attention to the different word

parts and the boxes provide organizational cues. A similar method that encourages children to put information into groups is found in Naglieri and Pickering's (2010) “Chunking for Spelling” intervention handout.

7. Nelson's writing mechanics remain an area of concern, though he has good Planning and Attention skills. He may benefit from learning the COPS strategy, a directional proofreading strategy in which Nelson rereads his work four times prior to completion. The first time he proofreads his passage to make sure he *capitalizes* the first word of each sentence, the second time is to make sure each paragraph is *organized* correctly, the third time is to check for *punctuation* errors, and the fourth time for *spelling* miscues.

Recommendations for Home

1. Nelson should be encouraged to read a minimum of 20 minutes per day after school in order to develop more text familiarity and enhanced fluency skills.
2. Nelson's parents may want to consider having a tutor work with him at home in order to improve his overall reading fluency skills.
3. Nelson's parents may want to consider using a reading fluency program at home (e.g., Great Leaps).
4. Nelson's parents may find the instructional methods described in the book *Helping Children Learn* (Naglieri & Pickering, 2010) to be useful. Especially appropriate are, for example, the handouts “Segmenting Words for Reading/Decoding,” “Spelling, Word Sorts for Improving Spelling,” and “Mnemonics for Spelling.”

Student Feedback:

It is strongly recommended that the clinician provide direct feedback to help Nelson better understand his unique strengths and weaknesses as a learner. The initial goal is to change Nelson's attitude toward school and himself by exploring further his mindset about his own abilities. This can be facilitated using the “Measure of Mindset” checklist shown in Figure 5.2. Next, it is important to help Nelson know that his PASS strengths can be used to manage the PASS weakness in Simultaneous processing. This can be accomplished with the aid of the handouts that are intended for students in *Helping Children Learn* (Naglieri & Pickering, 2010) and that describe each of the four PASS abilities. The overarching goal is to change Nelson's view of himself by providing reassurance that with knowledge of strengths and needs, success is possible. Therefore, the clinician and his parents should engage in a demystification process whereby the reason for academic failure is described and, most important, how PASS strengths can be used to overcome the weaknesses. The following discussion illustrates how this might happen:

Nelson, it was such a pleasure to work with you and discover all of your learning strengths. Believe me…there were a ton. You have a remarkable ability to approach learning with a plan in mind, and you stay attentive and focused to your assignment until the very end. I did notice that when you read, you sometimes focus a little too much on decoding the words and not letting your natural reading skills take over. You do a great job pronouncing each word, so we want to work with you on increasing your speed and fluency just a bit. One of the ways we are going to do this is by having you read a little more frequently at home each day. I also noticed that you give such a great effort when writing, but sometimes it can be hard to spell new words. One of the tricks to being a good speller is to close your eyes and see if you can see the word in your head. We have a few activities that should help you see words in your mind a little more clearly and that should really help with spelling. Nelson, the rest of your academic skills look really good, and given your wonderful attitude and great effort you put forth each day, you will be a very successful student. It was really great to work with you.

TEST YOURSELF

1. **Which of the following is the type of reading disability characterized by an overreliance on sound patterns, poor fluency and speed, and difficulty reading phonologically irregular words?**
   a. Mixed dyslexia
   b. Surface dyslexia
   c. Phonological dyslexia
   d. Comprehension dyslexia
2. **Which of the following are the main PASS processes involved with reading comprehension skills?**
   a. Executive Functioning and Vocabulary
   b. Successive and Simultaneous
   c. Planning and Attention
   d. VisualSpatial Skills and Organization
3. **Which of the following statements is true for the Feifer Assessment of Reading (FAR)?**
   a. It can be paired with the CAS2 to determine the presence of a learning disorder.
   b. It can tease out four subtypes of reading disorders.
   c. It can be used by teachers, psychologists, and educational diagnosticians.
   d. All of the above are true.

4. **Which of the following is *not* one of the main four subtypes of dyslexia?**
   a. Dysphonetic dyslexia
   b. Surface dyslexia
   c. Dissimilar dyslexia
   d. Mixed dyslexia
5. **Which reading program is recommended for a 6yearold student with poor successive processing and weak decoding skills?**
   a. Fundations
   b. CurriculumBased Measurement
   c. Read 180
   d. Alphabet Scanning

Answers: 1. b; 2. c; 3. d; 4. c; 5. a