# TILLS 

## SAMPLER

Screen and diagnose oral and written language disorders-including dyslexiawith just one test kit!

## Discover the test trusted by education professionals across the country


"TILLS is an excellent comprehensive tool for all ages of students."

- Jayne Trombley, MA CCC-SLP, retired public school speech/language pathologist
"With TILLS, I can give one assessment and get a wealth of information rather than giving multiple assessments."
-Audrey Adams, reading specialist


## "I would recommend TILLS to any and all school-based SLPs."

"TILLS is the most comprehensive assessment l've used in the 20 years l've been a school-based speech-language pathologist."
"Very easy to administer and score."
"I plan to use TILLS as an integral part of my diagnostic process."

> - Stephen MacCormack, M.S., SLP/CCC, Ed.S., private practice and school-based reading specialist

[^0]The contents of TILLS were developed under Grant No. R324A100354 from the Institute of Education Sciences of the U.S. Department of Education.

## TILLS

## One test kit. Results you can trust.

Are you frustrated with your current assessments?
Do you find yourself putting together your own test battery, even though you know that's not best practice?
Do you wish there was a better way to diagnose language and literacy disorders-including dyslexia?

Then it's time to discover the Test of Integrated Language and Literacy Skills ${ }^{\text {TM }}$ (TILLS ${ }^{\top M}$ ), the groundbreaking assessment that tests oral and written language skills in students ages 6-18 years. The TILLS Examiner's Kit is the reliable, valid, and comprehensive test kit you need to:

1 identify and diagnose language and literacy disorders, including dyslexia
2 document patterns of relative strengths and weaknesses
3 track changes in language and literacy skills over time

15 TILLS Subtests Vocabulary Awareness Phonemic Awareness Story Retelling Nonword Repetition Nonword Spelling Listening Comprehension Reading Comprehension Following Directions Delayed Story Retelling Nonword Reading Reading Fluency Written Expression (yields 3 scores) Social Communication Digit Span Forward Digit Span Backward

Through 15 subtests measuring key skills with curriculum relevance in mind (see sidebar), you'll assess and compare the full range of students' oral and written language and literacy skills. The resulting scores and the clear, at-a-glance TILLS Profile help you identify and track a student's strengths and weaknesses-information you'll use as you develop custom-tailored interventions.

One test kit. That's all you need to screen, diagnose disorders, and monitor progress. Read on to learn more about how TILLS works, why it should be your test of choice, and how it helps you reach your ultimate goal: improving students' communication skills so they can succeed in school.

## TILLS

## Products

## TILLS Examiner's Kit-Now with Tele-TILLS!

By Nickola Nelson, Ph.D., CCC-SLP, Elena Plante, Ph.D., CCC-SLP, Nancy Helm-Estabrooks, Sc.D., CCC-SLP, \& Gillian Hotz, Ph.D., CCC-SLP

Everything you need to administer, score, and interpret TILLS.

- Quick Start Guide. Keep this convenient laminated guide close at hand for an overview of the test, summaries of the subtests, and basic instructions for administration and scoring.
- Examiner's Manual. All the information you need to diagnose with TILLS. Includes information on administrating, scoring, and how to interpret scores for the TILLS subtests.
- Technical Manual. Your essential guide to TILLS development, validity and reliability, and more.
- Examiner's Practice Workbook. Get detailed practice material for scoring each subtest, transforming raw scores into standard scores, and interpreting the scores.
- TILLS Forms. You'll get 25 Examiner Record Forms to record and score student responses, plus 25 Student Response Forms your students will use to record responses on four TILLS subtests.
- Student Language Scale. Completed by parents, teachers, and students, this one-page checklist reveals each party's perspective on how the student is performing on academic tasks and allows you to screen for disorders.
- Stimulus Book. All the print stimuli you need to administer TILLS subtests.
- Digital Audio Files. Collected for you on one convenient USB, these files are for presenting the stimuli for two TILLS subtests. Additional audio files demonstrate examiner pronunciations for select subtests and provide examples of students' oral responses.
- Access to Tele-TILLS. After a timely 2020 study supported the validity of administering TILLS virtually, the TILLS developers have made supplemental Tele-TILLS materials available to guide users who are supporting users in online settings.


## TILLES

## Products

## TILLS ${ }^{\text {TM }}$ Easy-Score ${ }^{\text {TM }}$

TILLS Easy-Score ${ }^{\text {TM }}$ is your electronic scoring solution for TILLS. A free, convenient, responsive web-based application, Easy-Score automates the steps of the Scoring Chart and Identification Chart, Profile Chart, and Confidence Intervals on the Examiner Record Form. For busy TILLS users, this ensures:

- Reduced paperwork time. Spend less time scoring by hand and more time helping students.
- Accurate, error-free scores. Human error can lead to misleading scores and inaccurate identification of disorders. Easy-Score ensures correct scoring every time.
- Faster, more efficient process. Easy-Score streamlines the TILLS process so you can move on to the next steps without delay - and start connecting children with services and supports.

Access the Easy-Score now at www.tillseasyscore.com

## TILLS ${ }^{\text {TM }}$ Writing Report Templates

Writing meaningful reports takes time and expertise. Download free, easy-to-use templates to help with this essential step toward improving outcomes for children. The TILLS Report Writing Templates give you step-by-step help with writing customized reports for students who have completed TILLS, increasing the efficiency and accuracy of your reporting. All you have to do is register at the TILLS website, and the templates are free and ready for you to start using!

Register to use the report templates at http://bit.ly/tills-templates

## TILLS ${ }^{\text {TM }}$ Practice Kit

Ideal for preservice higher education courses and inservice trainings, this convenient Practice Kit includes the materials needed for training and practice sessions with TILLS. You and your trainees will get essential materials for learning about TILLS and standardized testing in general. TILLS Practice Kits are used to:

- Give trainees a complete overview of TILLS
- Familiarize trainees with the TILLS subtests through practice exercises
- Offer concrete examples of standardized testing principles
- Provide practice for scoring and interpreting all subtests


## KIT COMPONENTS: One Examiner's Practice

 Workbook, the Practice Kit Downloads needed to complete the workbook exercises, a pack of 3 Examiner Record Forms to work through the exercises in the workbook, and one Quick-Start Guide.[^1]
## TILLS How it works

Here's how to use the TILLS Examiner's Kit to screen for and diagnose language and literacy disorders, including dyslexia.

## SCREEN with the SLS

First, you'll identify students at risk for a language/literacy disorder with the evidenced-based Student Language Scale (SLS), a quick 12-question screener that can be complreted by the teacher, parent, and/or student. Complete in less than five minutes, the SLS helps you:


- Screen for language/ literacy disorders, including dyslexia, with high levels of accuracy by gathering teachers' and parents' ratings of students.When teachers' and parents' rate more than two areas on items 1-8 less than 5, SLS results indicate the student is at risk and needs further comprehensive assessment with TILLS.
- Gather input about a struggling student's strengths and needs from multiple sourcesa key requirement of IDEA.
- Enhance home-school communication by gaining new insight into student performance, whether or not there are concerns.

Watch the webinar: Identify Dyslexia Using TILLS: http://bit.ly/TILLSdyslexia

## DIAGNOSE with TILLS

After the SLS helps you identify children at risk for a language/literacy disorder, use TILLS for diagnosis. Here's how:

- Step 1: Administer all 15 TILLS subtests. If you're short on time, administer only the Identification Core subtests for the student's age. Then complete the testing at a later time.
- Step 2: Complete the first page of the Examiner's Record Form, which helps you score the subtests, compare the scores to those of the student's same-age peers, and compare the sound/word composite score to the sentence discourse composite score.
- Step 3: Complete the Identification Chart to determine if the student has a disorder.
- Step 4: Complete the Profile Chart (see below) for an at-a-glance, big-picture look at the student's current language and literacy skills in comparison to the quadrant model on which the TILLS is based.

You can use Easy-Score to automatically generate scores for Steps 2-4!


## Top Benefits of

- More comprehensive assessment. TILLS is the only test that assesses both oral AND written language with an evidence-based model that shows how these skills relate to each other.
- More sensitive to picking up disorders. The TILLS normative sample only includes typically developing students, in order to provide the most accurate assessment and to support the major purpose of the test-to identify the presence of language/literacy disorders. Including only students without impairment in the normative group establishes a standard for typical performance that can be differentiated from the performance of students with language and literacy disorders.
- More meaningful results. TILLS uses percentile ranks, not Normal Curve Equivalent (NCE) percentiles, to give additional rich information about the number of students in the norm reference group who earned a raw score lower than your student. NCE percentiles give the same information as standard scores and assume the normative distribution is a perfect bell curve. TILLS percentile ranks reflect the actual curve of the underlying normative distribution, thus providing more information to inform diagnostic decisions.
- Recognizes influence of low SES. Evidence-based adjustments to cut scores were determined to prevent over-identification of students when influences of low SES may be a primary concern, rather than language impairment.
- One test is best. With TILLS, you get the full picture of oral and written language skills with just one test kit. Because you're not administering items from multiple tests, you can compare results in different areas and know that your results are psychometrically sound.
- Powerful TILLS profile. TILLS profiles give you an at-a-glance understanding of your students' strengths and needs-something other tests can't offer. These profiles help you communicate with others, pinpoint what to work on, diagnose and recognize profiles of disorders, and easily track changes in specific areas of concern.
- A real time-saver. If you're an experienced clinician, you can administer TILLS in 90 minutes or less. (It can also be chunked into several sessions.) You'll spend less time testing and more time helping students. The time you do spend testing will be meaningful and relevant to understanding your students' needs.


## TILLS

## Technical Data

## Specificity and Sensitivity

Many other tests don't provide adequate information on diagnostic accuracy - or if they do, it's often for a single group of students with a wide age range. But TILLS tested sensitivity and specificity across the full age range covered by the test. Each TILLS subtest meets strong psychometric standards using scientific evidence gathered in pilot studies and field trials, a national beta trial, and a standardization study with more than 1,200 students.

Diagnostic accuracy data are broken down into nine different "age bands" meaningful to the development of language and literacy skills:

| AGE GROUPS | SENSITIVITY | SPECIFICITY |
| :--- | :---: | :---: |
| 6-year-olds | $84 \%$ | $82 \%$ |
| 7-year-olds | $84 \%$ | $86 \%$ |
| 8-year-olds | $97 \%$ | $100 \%$ |
| 9-year-olds | $83 \%$ | $81 \%$ |
| 10-year-olds | $81 \%$ | $81 \%$ |
| 11-year-olds | $86 \%$ | $82 \%$ |
| 12-year-olds | $83 \%$ | $100 \%$ |
| 13-year-olds | $84 \%$ | $86 \%$ |
| 14- to 18-year-olds | $87 \%$ | $87 \%$ |

Sensitivity and specificity for screening with the TILLS SLS are also strong for ratings made by teachers and parents:

| AGE GROUPS | SENSITIVITY | SPECIFICITY |
| :--- | :---: | :---: |
| Teachers | $92 \%$ | $90 \%$ |
| Parents | $85 \%$ | $83 \%$ |

## TILLES

## Two models. One powerful test.

TILLS incorporates two effective models: the Language Levels x Modalities Model and the Quadrant Model. These models work together to uncover the nature of a student's strengths and weaknesses across both oral and written modalities.

## The Language Levels x Modalities Model

TILLS is based on a unique Language Levels x Modalities Model that covers all the language and literacy skills students must demonstrate to succeed in school. This graphic gives you an overview of the model, along with the TILLS subtests designed to test each part of the model.


Some subtests also measure aspects of memory relevant to classroom performance and performance on the other subtests.
*Assesses semantic relationships, which relates to the sentence/discourse factor more than the sound/ word factor, even though it uses word level stimuli.

The Language Levels $\times$ Modalities Model makes it easy to understand at a glance what's being measured and how skills interrelate. It also helps interdisciplinary teams communicate clearly about the student's needs.

## The Quadrant Model

Oral and written language abilities during the school years are best explained by the Quadrant Model that includes sound/ word and sentence/discourse language levels as contributing factors. By comparing students' language/literacy skills at the sound/word level and the sentence/discourse level (rather than focusing on expressive/receptive factors or oral/written factors like other tests do), TILLS helps you make a differential diagnosis aligned with the quadrant where the student's profile fits best.

Nelson, N. W., Plante, E., Anderson, M., \& Applegate, E. B. (2022). The dimensionality of language and literacy in the school-age years. Journal of Speech, Language, and Hearing Research, 65(7), 2629-2647. https://bpub.fyi/JSLHR


Sound/Word Level Ability

This Quadrant Model is the only evidence-based

## TILLS

The four case stories on the following pages illuminate the power of TILLS for children across the age span and with different language strengths and needs.


## Dawn's Story

Dawn was a 6-year-old kindergarten student with a previous diagnosis of oral language difficulties. When she was assessed with TILLS toward the end of her kindergarten year, her results indicated that these difficulties were ongoing.

To the right is her quadrant model profile. Dawn's scores fell in the lower left quadrant, meaning she had low scores on both sound/word-level and sentence/discourse-level abilities.

Below is her TILLS profile. As the Xs on the chart indicate,
 Dawn scored one or more standard deviations below the mean on 7 out of the 10 oral language measures. She scored low on all the subtests that make up the Identification Core for 6- and 7-year-olds-Vocabulary Awareness, Phonemic Awareness, and Nonword Repetition.

|  |  | Oral Language |  |  |  |  |  |  |  |  |  | Written Language |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Sound/Word Level |  |  |  | Sentence/Discourse Level |  |  |  |  |  | Sound/Word Level |  |  |  | Sent/Disc Level |  |  |
|  |  | PA | $\begin{aligned} & \text { NW } \\ & \text { Rep } \\ & \hline \end{aligned}$ | DSF | DSB | VA | LC | FD | SR | DSR | SC | $\begin{aligned} & \text { NW } \\ & \text { Read } \end{aligned}$ | RF | $\begin{aligned} & \text { NW } \\ & \text { Spell } \end{aligned}$ | WEWord | RC | $\begin{aligned} & \text { WE- } \\ & \text { Disc } \end{aligned}$ | WESent |
|  | Standard Score | 6 | 1 | 11 | 9 | 4 | 6 | 11 | 7 | 6 | 6 | 8 | 9 | 9 | 11 | 12 | 7 | 8 |
| +2 SD | 16-19 | $\bullet$$\bullet$$\bullet$$\bullet$$\bullet$$\bullet$$\bullet$$\bullet$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 15 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 14 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| +1 SD | 13 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | - |  |
|  | 12 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | X | - |  |
|  | 11 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | , | - |  |
| Mean | 10 |  |  |  |  |  |  |  |  |  | $1$ | i |  |  |  |  |  |  |
|  | 9 |  |  | - | $x$ | - |  | - |  |  | - |  |  |  | - | - |  |  |
|  | 8 |  |  | - | - | , |  | - | , |  | , | K | - |  | - | - |  | X |
| -1 SD | 7 |  |  |  |  |  |  | - |  |  |  |  | - | - |  | - | x | - |
|  | 6 |  |  | - | - |  | $x$ | - | - | < |  | - | - | - | - | - | - | - |
|  | 5 | - |  | - | - |  | - | - | - | - | - | - | - | - | - | - | - | - |
| -2 SD | 4 | - |  | - | - |  | - | - | - | - | - | - | $\bullet$ | $\bullet$ | - | - | - | - |
|  | 3 | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
|  | 2 | - |  | - | - | - | - | $\bullet$ | - | - | - | - | - | - | - | - | - | - |
| -3 SD | 1 | - | $\checkmark$ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
|  | 0 | - |  | - |  | - |  | - | - |  | - |  | - |  |  |  |  |  |

(Key: DSB, Digit Span Backward; DSF, Digit Span Forward; DSR, Delayed Story Retelling; FD, Following Directions; LC, Listening Comprehension; NWRead, Nonword Reading; NWRep, Nonword Repetition; NWSpell, Nonword Spelling; PA, Phonemic Awareness; RC, Reading Comprehension; RF, Reading Fluency; SC, Social Communication; SR, Story Retelling; VA, Vocabulary Awareness; WEDisc, Written Expression-Discourse Score; WE-Sent, Written Expression-Sentence Score; WE-Word, Written Expression-Word Score.)

Dawn's results were a surprise to her team. They'd been thinking about dismissing Dawn from speechlanguage intervention because she now "sounded okay" when she talked. But after her second TILLS test, they reconsidered. They reviewed Dawn's TILLS profile and realized that, with an Identification Core score of 11 (compared to the cut score of 24), she continued to exhibit a language/literacy disorder and had ongoing intervention needs.

So what did Dawn's team do to help? Well, they were especially concerned that Dawn's low scores on the Nonword Repetition and Phonemic Awareness subtests signaled problems detecting and representing the phonological structure of words. And her low score on the Vocabulary Awareness subtest told them she was having trouble describing semantic relationships among word meanings. With these challenges in mind, the team decided to help Dawn build stronger associations between how words sound and look in print and what they mean.

First, Dawn's SLP and teacher collaborated to identify vocabulary from the upcoming unit on professions (e.g., firefighters, doctors) and their tools. The team took advantage of Dawn's relative strength with printed language, which her TILLS reading and writing scores had uncovered. Dawn's SLP created notebook pages with Dawn for each profession, adding pictures and words representing sets of tools. This allowed the SLP to teach Dawn about compound words, such as firehose, and the morphological components of words like thermometer and microscope. Dawn's teacher reinforced this work by teaching the whole class how to identify the speech sounds they heard at the beginning and end of words and to segment and blend sounds

The team also had concerns about Dawn's relatively low scores in Story Retelling and Delayed Story Retelling - especially since Dawn had answered only one of the four comprehension questions correctly. After a close examination of her TILLS profile, they found that Dawn's comprehension difficulties related to challenges in understanding the deeper meanings of language. To address this:

- The teacher had Dawn sit at the front of the group during daily story reading, and she directed

some of her questions to Dawn ("Why did the character do that?") to check comprehension.
- The teacher invited Dawn and other students to act out characters' parts in some stories to aid comprehension.
- Dawn was asked to bring recently read storybooks to her speech-language intervention sessions. Her SLP used them to assess Dawn's comprehension and teach her to make sense of what she was hearing.
- The teacher and SLP team-taught lessons about the parts of a story to Dawn and other students with special needs. They provided a template that the students used to plan and write stories. Dawn enjoyed reading her stories to her teacher, peers, and parents. This helped her deepen her wordand sentence-structure knowledge while also developing her social understanding of stories.

The TILLS test uncovered difficulties Dawn's team might have missed on their own-and helped them realize that she would need further targeted interventions before her struggles could escalate. Results of TILLS were instrumental in helping Dawn's team consider both her strengths and needs as they provided custom-tailored interventions and monitored her progress.

That's the power of TILLS!

## Adam's Story

Eight-year-old Adam was an active, sociable third-grader. In first and second grade, he had received services for an articulation disorder-not in itself a heightened risk for reading impairment. But still, Adam did struggle with reading and spelling, and through the beginning of third grade, he received response-to-intervention services to target reading fluency. Although his fluency scores improved, Adam continued to struggle with decoding and spelling.

Adam was assessed with TILLS. To the right is his quadrant profile. Adam fell into the upper left quadrant, meaning he showed relatively intact oral language sentence/discourse-level abilities but struggled at the sound/word level, which interfered with his
 reading comprehension and written expression, lowering his written language sentence/discourse abilities as well.

Here's what his TILLS profile looked like.

(Key: DSB, Digit Span Backward; DSF, Digit Span Forward; DSR, Delayed Story Retelling; FD, Following Directions; LC, Listening Comprehension; NWRead, Nonword Reading; NWRep, Nonword Repetition; NWSpell, Nonword Spelling; PA, Phonemic Awareness; RC, Reading Comprehension; RF, Reading Fluency; SC, Social Communication; SR, Story Retelling; VA, Vocabulary Awareness; WE-Disc, Written Expression-Discourse Score; WE-Sent, Written Expression-Sentence Score; WE-Word, Written Expression-Word Score.)

From these results, Adam's team was able to confirm his diagnosis of dyslexia. However, their school district, like most U.S. public school districts, used the term specific learning disability instead of dyslexia for qualifying children for special educational services. Although the term dyslexia wasn't used officially, his assessment and planning team members used the term to help Adam and his parents understand the specific nature of his difficulties, explaining that dyslexia is a type of learning disability.

After this diagnosis, what did Adam's team do to help? First, the team looked at his scores on several TILLS subtests-especially Phonemic Awareness, Nonword Spelling, and Written Expression-and determined he would need explicit instruction to improve his understanding of phonics. Another concern was that Adam's score for the Reading Comprehension subtest was almost 2 standard deviations below the mean, in contrast to his higher Listening Comprehension score (a discrepancy also consistent with the dyslexia diagnosis). The team decided that Adam's difficulties on the Reading Comprehension subtest most likely reflected his weaknesses in phonics and reading decoding and not a general language comprehension problem. To improve his reading comprehension, Adam would need to improve his word structure knowledge, which would help him build word recognition skills.

Adam's team planned to provide explicit intensive instruction in phonemic awareness, phonics, reading decoding, and spelling. Adam's SLP would keep working with him but shift her focus from articulation to teaching sound-symbol associations and decoding and spelling patterns. This would include teaching Adam to analyze the phonological and morphological structure of multisyllabic words. Adam's SLP, learning disabilities resource room teacher, and general education teacher formed a study group to teach themselves more about word structure and discuss how to teach Adam and his classmates about the structure of words. The team also decided that Adam should have accommodations for the extra time he needed to ensure accurate decoding. They temporarily shifted his focus on reading fast to reading accurately, if more slowly.

These goal areas were consistent with Grade 3 curricular standards. According to the Common Core State Standards, third-grade students are expected to be able to identify the meanings of the most common prefixes and suffixes, decode words with common Latin suffixes, decode multisyllable words, and read grade-appropriate irregularly spelled words. To help Adam build these skills, his team took a comprehensive approach to word study that went beyond memorizing words on

weekly spelling tests. Instead, they emphasized understanding how word sounds and meanings relate to the way words look in print.

TILLS helped ensure that Adam didn't slip through the cracks due to his improved fluency scores for familiar words, which masked his ongoing word recognition difficulties for unfamiliar words. The test uncovered challenges he still needed to work on, provided critical evidence for his dyslexia diagnosis, and identified areas of focus for Adam's interventions.

That's the power of TILLS!

## Maria's Story

Maria was an 11-year-old fifth grader whose mother had concerns about her school performance, particularly in reading and spelling. Maria's mother and teacher both rated spelling as Maria's lowest area on the Student Language Scale (SLS). Maria rated herself lowest in "understanding a story when reading." Her TILLS profile is shown below:


|  |  | Oral Language |  |  |  |  |  |  |  |  |  | Written Language |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Sound/Word Level |  |  |  | Sentence/Discourse Level |  |  |  |  |  | Sound/Word Level |  |  |  | Sent/Disc Level |  |  |
|  |  | PA | $\begin{aligned} & \text { NW } \\ & \text { ReD } \end{aligned}$ | DSF | DSB | VA | LC | FD | SR | DSR | SC | NW <br> Read | RF | NW <br> Spell | WEWord | RC | WE- <br> Disc | WESent |
| +2 SD | Standard Score | 11 | 8 | 13 | 5 | 6 | 15 | 11 | 9 | 11 | 11 | 2 | 11 | 7 | 5 | 13 | 11 | 10 |
|  | 16-19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
|  | 15 | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - |
| +1 SD | 14 | - | - | - | - | - |  | - | - | - | - | - | - | - | - | - | - | - |
|  | 13 | - | - | K | - | - |  | - | - | - | - | - | - | - | - |  | - | - |
|  | 12 | - | - |  | - | - |  | - | $\bullet$ | - | - | - | - | - | $\bullet$ | - | - | - |
| Mean | 11 | K | - |  | - | - |  | N | - | $N$ | N | - | $x$ | - | - | 。 | * | - |
|  | 10 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | K |
|  | 9 | - | , | - | - | - | - | - |  | - | - | , | - | - | 。 | - | - | - |
| -1 SD | 8 | - |  | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
|  | 7 | - | - | - |  | , | - | - | - | - | - |  | - |  |  | - | - | - |
|  | 6 | - | - | - |  |  | - | - | - | - | - | , | - | - |  | - | - | - |
| -2 SD | 5 | - | - | - |  | - | - | - | - | - | - | , | - | - |  | - | - | - |
|  | 4 | - | - | - | - | - | - | - | - | - | - |  | - | - | - | - | - | - |
|  | 3 | - | - | - | - | - | - | - | $\bullet$ | - | - |  | - | - | - | - | - | - |
| $\begin{gathered} -3 \text { SD } \\ \downarrow \end{gathered}$ | 2 | - | - | - | - | - | - | - | $\bullet$ | - | - |  | $\bullet$ | - | - | $\bullet$ | - | - |
|  | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
|  | 0 | - | - | - | $\bullet$ | - | - | - | - | - | - | - | - | - | - | - | - | - |

(Key: DSB, Digit Span Backward; DSF, Digit Span Forward; DSR, Delayed Story Retelling; FD, Following Directions; LC, Listening
Comprehension; NWRead, Nonword Reading; NWRep, Nonword Repetition; NWSpell, Nonword Spelling; PA, Phonemic Awareness; RC, Reading Comprehension; RF, Reading Fluency; SC, Social Communication; SR, Story Retelling; VA, Vocabulary Awareness; WE-Disc, Written Expression-Discourse Score; WE-Sent, Written Expression-Sentence Score; WE-Word, Written Expression-Word Score.)

TILLS confirmed Maria's difficulties: her identification core composite was 26 (compared to 34, the cut score for her age group of 8- to 11-year-olds). Maria's TILLS profile also shows she scored notably lower on the sound/word composite (standard score of 80), which is more than one standard deviation below the mean. But Maria also had many strengths. Consider her higher score on the sentence/discourse composite (standard score of 106), which is above the mean and within normal limits.

This pattern is consistent with diagnosis of a language/literacy disorder-specifically dyslexia. It also was consistent with information gathered with the TILLS-SLS. Maria's situation is similar to many other students who have dyslexia, but whose sentence- and discourse-level strengths mask their difficulties. In Maria's case, she was able to use her unusually strong sentence comprehension abilities to perform above average on the Reading Comprehension and Listening Comprehension subtests. At the same time, Maria's concerns about her reading comprehension difficulties needed to be taken seriously.

One obvious clue to explaining this apparent discrepancy came from Maria's low scores on tasks requiring word-structure knowledge (i.e., Nonword Reading, Nonword Spelling, and the Written Expression-Word score). Such problems would interfere with figuring out new words in complex texts at a fifth grade level and above. The more surprising clue came from Maria's difficulty on the Vocabulary Awareness subtest, particularly her lack of semantic flexibility in identifying a second pair of words after identifying the first pair. Semantic limitations could be contributing to her reading comprehension concerns. This has implications for intervention, suggesting a need to help Maria make connections between word structure and word meaning. For example, learning to parse words such as hypothermia into their morphemes (hypo = lower and thermia = referring to temperature) could help Maria with her spelling challenges. Rather than simply trying to memorize words, she could reconstruct them using her combined knowledge of word structure and word meaning.

The quadrant profile below sums up the strengths and weaknesses Maria demonstrated. Maria's language/literacy difficulties may be confusing to her and others because they involve striking weaknesses in word structure knowledge, surrounded by strengths in sentence/discourse level skills in both oral and written language. This pattern is sometimes called "twice exceptional," because it combines a pattern of disability with elements of giftedness.

To minimize frustration and maximize success, Maria needs to learn how to take advantage of her gifts and strengths while improving her word structure knowledge and semantic flexibility. The TILLS examiner made the following recommendations based on Maria's test results:

- Due to her weakness in vocabulary (standard score of 6), Maria may benefit from intervention helping her to develop semantic flexibility along with word structure knowledge.
- Interventions should focus on helping Maria hear (and reproduce when spelling) the phonological structure of vocabulary words that are drawn from the general education curriculum, as well as to discuss their alternative possible meanings.
- Maria needs to develop strategies for spelling words not just from memory, but also based on analysis of their phonological and morphological structure.
- Because Maria has a low word score for the Written Expression subtest (standard score of 5), she needs to work on word structure knowledge in multiple contexts beyond traditional spelling list memorization.
- Maria has a gift for communicating through writing in a witty and clever way, and interventions should help her develop this gift further and celebrate it.
- Intervention should be provided by someone who is prepared to work with people with dyslexia and can help Maria put this highly specific challenge in perspective.

Assessing Maria's skills and needs with TILLS uncovered complex, specific challenges that might have remained a mystery otherwise. The test helped point the way to the right interventions - and with effective supports in place, Maria's overall prognosis for school success is strong.

## That's the power of TILLS!

## Robert's Story

## AGE

 17Robert was a 17-year-old tenth grader who had been diagnosed with language impairment at 3 years of age. He'd been homeschooled for most of his life by his mother, who held credentials in teaching and special education. Robert's mom wanted to know how his oral and written language skills compared to skills of typically developing students his age, so she had him tested with TILLS.

Robert's TILLS results revealed evidence of an ongoing primary language disorder. To the right is his quadrant profile. Robert fell into the lower left quadrant, showing difficulties in both sound/ word and sentence/discourse skills, but with some areas of rela-
 tive strength at the sentence/discourse level (in Listening Comprehension, Reading Comprehension, and Written Expression-Discourse).

Robert's mother attributed his relatively higher scores on Listening Comprehension and Reading Comprehension to the work they'd done with a program targeting sight word recognition and listening and reading comprehension. But she was surprised to see Robert's low scores on the Vocabulary Awareness, Phonemic Awareness, Nonword Repetition, Nonword Reading, Nonword Spelling, and Written Expression-Word score subtests. You can see these scores in Robert's TILLS profile below:


[^2]Robert's TILLS results indicated that he still had progress to make. He needed to keep working on vocabulary and discourse-level meanings, especially in the oral modality and in following directions. Robert's low scores on the Story Retelling and Social Communication subtests also pointed to sentence/discourse-level difficulties.

On the other hand, Robert's sample from the Written Expression subtest was a bright spot, and more consistent with his higher scores in Listening Comprehension and Reading Comprehension. Robert's writing sample (shown below) demonstrated that he'd grasped the central problem and facts in a story about an old building. (This was reflected in his above-average score for Written


Knowing that Robert had relatively strong written expression skills helped his mother formulate a plan. She had him write about his curricular assignments to help him solidify his knowledge about word meaning and structure. This strategy would help him achieve Grade 11-12 Common Core curricular standards: To write informative and explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.

Robert's mother also had him read and discuss stories with a strong narrative structure. This provided a context for working on his vocabulary and comprehension skills in both oral and written
modalities, helping him move toward the Grade 11 curricular standard: To read and comprehend grade-level literature-including stories, dramas, and poems-proficiently, with scaffolding as needed.

Robert's situation illustrates how important it is to take a step back occasionally and recognize the big picture when you work closely with a student for many years. TILLS helped Robert's teacher-mother do just that, providing the clear and comprehensive picture her own assessments missed. The test highlighted not only Robert's remaining areas of need, but also specific strengths that she could capitalize on when designing successful interventions for him.

That's the power of TILLS!

## T1L L

## Subtests

In this section, you'll get a concise introduction to each of the 15 TILLS subtests. You'll learn the purpose of each subtest, get a brief description of the tasks you'll administer, and preview a sample item that helps illustrate how each subtest works.

## Vocabulary Awareness

Purpose: To assess a student's lexical knowledge, awareness of semantic relationships, and cognitive-linguistic flexibility.

Task: The student must be able to first identify a pair of semantically related words from a triplet of three words, and then switch sets to identify a second semantic pairing. To administer the subtest, you'll show a student three printed words while reading them out loud. For each set of words, you'll ask the student to identify two words that go together and tell why; then you'll ask the student to identify another two words from the same three-word set that go together in a different way and explain why. The student must give you both pairs and reasons why to get full credit.

Sample Items:

| dog-cat-bone | dog-cat-bone |
| :--- | :--- |
| Both animals / pets (not dogs chase cats [not core <br> meaning]) | Dogs like / eat / chew / bury bones |
| light-sun-feather | light-sun-feather |
| Sun gives light / both bright | Feather is light / not heavy |



[^3]
## SUBTEST

## SUBTEST 3

## Phonemic Awareness

Purpose: To assess a student's awareness of the individual units of sound that make up spoken words (phonemes). Students struggling with phonemic awareness may have academic difficulty with decoding, fluency, and spelling.

Task: You'll say a "pretend word" such as "bip" or "stig" and ask the student to say the word back to you without the first sound. To complete this task, students must have a concept of individual speech sounds (phonemes), and they must be able to isolate the initial sounds of words in order to remove them.

Sample Items:

| Item | Phonetic spelling | Spoken response |
| :--- | :---: | :--- |
| bip $\rightarrow$ ip | $/ \mathrm{bip} / \rightarrow / \mathrm{ip} /$ |  |
| stig $\rightarrow$ tig | $/$ stig $/ \rightarrow /$ tig $/$ |  |

## Story Retelling

Purpose: To assess a student's ability to listen to, comprehend, and retell a story. Narratives are an important part of academic subjects like language arts and history, and they're also central to social interactions.

Task: You'll ask the student to listen carefully while you read an age-appropriate story (two different stories are provided, one for ages 6 through 11 years and one for ages 12 through 18 years). The student's job is to tell the story back to you in the same way. Students earn credit for including the content units from the original story as they retell it. After the student finishes retelling, you'll ask four questions to assess comprehension of key events or relationships and inferential information.

Sample Items: Test examiners will select the age-appropriate story and follow the directions for that story.
Story A: "Tommy the Trickster" for students ages 6;0-11;11 (33 content units)
Story B: "The Rubber Raft" for students ages 12;0-18;11 (51 content units)

[^4]
## SUBTEST

## Nonword Repetition

Purpose: To assess a student's speech perception, the ability to hold a sequence of speech sounds in memory, and the ability to reproduce those speech sound (phonological) sequences accurately. TILLS uses nonwords that are orthographically similar to English, to give you information about your student's morphological and orthographic knowledge.

Task: You'll play a digital recording of a person pronouncing a set of nonwords. Each nonword is presented within a phrase requesting that the student repeat them; for example, "Say glapped" or "Say interpidable." Responses are scored incorrect if the student makes any deviations from the stimulus words that can't be attributed to consistent misarticulations or dialectal pronunciations.

Sample Items:

| Item | Actual/target spoken response |
| :--- | :---: |
| bup | $\frac{}{/ \mathrm{b} \wedge \mathrm{p} /}$ |

Subtests 4 and 5 are the first of several subtest sets that are parallel to each other, where the variable that changes is the modality. In this case, Subtest 4 focuses on listening and Subtest 5 focuses on writing. Since the subtests are conormed, you can make effective comparisons of the student's performance on each.

## SUBTEST

## Nonword Spelling

Purpose: To assess a student's ability to represent phonemic and morphemic components of novel spoken words by spelling them with conventional orthographic (letter sequence) patterns.

Task: You'll ask students to listen to another audio recording of "pretend words." Tell them that these are the same pretend words they said before in the Nonword Repetition subtest. Remind the students that although these are not real words, they should spell them using what they know about real words. (When you score the students' responses, give credit for multiple spellings, based on the rule that comparable spellings must exist for real words.)

Sample Items: Example of Student Response

| Item | Target written response |
| :--- | :---: |
| $\operatorname{stam}$ | $\overline{\mathrm{s}} \overline{\mathrm{t}} \overline{\mathrm{a}} \overline{\mathrm{m}}$ |
|  |  |



## SUBTEST <br> Listening Comprehension

Purpose: To assess a student's ability to comprehend the complex syntax of academic language and to draw inferences allowed by the text.

Task: You'll ask students to listen to some very short stories and answer questions about them. The language in these stories purposefully uses complex sentence structures similar to academic language. Direct students to answer "yes" if they're sure the answer is yes, "no" if they're sure the answer is no, and "maybe" if the story doesn't clearly tell them the answer. The use of "maybe" as a correct answer is one way to assess your student's metalinguistic ability; it shows "Can the student consider whether they don't have enough information to know?"

Sample Items:
Teresa has a gray and white kitten that likes to play with string. The kitten's name is Fluffy.

| a. Is Teresa's kitten black? | Y | (N) | M |
| :--- | :--- | :---: | :---: | :---: |
| b. Does Teresa's kitten like to play with string? | (Y) | N | M |
| c. Does Teresa have a dog? | Y | N | (M) |

Subtests 6 and 7 are also parallel tasks where the modality changes from listening to reading.

## SUBTEST

7

## Reading Comprehension

Purpose: To assess a student's reading comprehension. (This test is designed to be administered right after the Listening Comprehension subtest so the results of the two tests can be compared directly.)

Task: The student will be shown stories like the ones he or she has just heard - but now, it is the student's turn to read the stories. As before, they'll answer "yes," "no," or "maybe" to questions about the story.

Sample Items:

1. "One morning Susan got up too late to catch the school bus. She thought that she would be late for school, but her mother got her there on time."

| a. "Did Susan miss the bus?" | (Y) N M |
| :--- | :--- |

A hallmark of dyslexia is when listening comprehension is significantly stronger than reading comprehension (although that may not be true for every student). TILLS gives you the ability to assess both skills with the same normative sample, allowing for direct comparison of the two areas.

[^5]
## SUBTEST

## Following Directions

Purpose: To measure the ability to listen to a sequence of directions, to understand them, and to hold them in short-term memory long enough to carry them out. Because auditory verbal working memory is an area of interest when assessing for language/literacy disorder, this task was intentionally designed without visual supports for the auditory stimuli. This also prevents visual rehearsal, providing a more accurate look at performance that mimics listening to classroom directions.

Task: You'll the student oral instructions related to a set of graphic symbols that are covered up at the beginning of the task. Then ask student to move the card covering the symbols when you say "Go," recall your oral instructions, and carry them out by marking the corresponding graphic items on the Student Response Form. Having students record their answers on the Student Response Form ensures that you don't have to remember their responses (a difficulty with other tests' "following directions" tasks that can impact scoring accuracy).

Sample Items:

| Instructions | Student's response (from Student Response Form) |
| :--- | :--- |
| Number 1: Cross out the circle. Go. |  |
| Number 2: Draw a line from the heart to the box. Go. |  |

## SUBTEST <br> Delayed Story Retelling

Purpose: To measure retention of narrative information over a period of 15 to 20 minutes (a measure of long-term memory).

Task: You should administer the Delayed Story Retelling 15-20 minutes after administration of the Story Retelling subtest. Ask the student to remember the story used previously, giving the title of the appropriate story ("Tommy the Trickster" for younger students or "The Rubber Raft" for older students). Then ask the student to simply remember and retell as much as possible. If the student hesitates, say "just tell me anything you remember."

Sample Items: Test examiners will select the age-appropriate story and follow the directions for that story.
Story A:"Tommy the Trickster" for students ages 6;0-11;11 (33 content units)
Story B: "The Rubber Raft" for students ages 12;0-18;11 (51 content units)

[^6]
## SUBTEST

10

## SUBTEST <br> 11

## Nonword Reading

Purpose: To assess a student's ability to decode novel words that are not recognizable as real words.

Task: You'll ask students to read and pronounce a set of printed nonwords on a page in the Stimulus Book. The stimuli for Nonword Reading are similar to the words from the Nonword Repetition and Nonword Spelling subtests, but not identical. Some assess awareness of how to decode particular patterns, such as the long vowel "silent e rule" in dape, or the "double consonant short vowel" rule in shiggle.


| Stimulus word | Expected production (and acceptable <br> alternatives) |
| :--- | :---: |
| gup | $\frac{1 \mathrm{~g} \wedge \mathrm{p} /}{}$ |
| rask | $\frac{/ \mathrm{ræsk} /}{}$ |

SUBTEST 10 Practice Items
gup
rask

## Reading Fluency

Purpose: To assess automatic word recognition and the accuracy of reading ability at the word level. Reading Fluency is distinguished from Nonword Reading in three ways: 1) the Reading Fluency subtest uses real words, 2) the real words are in sentence contexts, and 3) the student must read the words not just accurately but also fluently to receive credit.

Task: Turn to the age-appropriate story in the Stimulus Book and ask the student to read a series of "facts that tell a story." The facts are presented as short sentences, one per line.As the student reads, keep track of how many words the student reads automatically without hesitation and without sounding them out. You'll mark any words that are repeated or produced nonfluently, required sounding out, are read incorrectly, or are inserted or omitted.

Sample Items:
SUBTEST 11

The Little Dog
There was a dog.
He was little.
He was brown.
He was white.
A car almost hit him.
It was in front of our school.
He was scared.
He was okay.

## SUBTEST

 12
## Written Expression

Purpose: To observe the student's written expression skills at both sound/word and sentence/ discourse levels. This subtest provides three scores that examine three different aspects of writing - a discourse score, a sentence score, and a word score.

Task: To administer the Written Expression subtest, you'll begin by showing the student a sample set of story facts in the Stimulus Book. Read the facts and then comment on the story being okay, but kind of "choppy." Show an example on the Student Response Form of how you could put the facts together in a way that sounds more interesting and less choppy. Then, you'll turn to the story with the facts the student read aloud in the Reading Fluency task. If the student showed any difficulty reading the words on the Reading Fluency task, read them out loud for the student. Finally, you'll ask the student to rewrite the story, putting the facts together in a way that sounds less choppy and more interesting.

Example of a student's written response:


## SUBTEST <br> 13 <br> Social Communication

Purpose: To assess the ability to understand language describing social situations, and to formulate responses that fit the social context.

Task: To administer this subtest, you'll tell the student that this activity is about acting a scene, like from a TV show or a movie. You'll give the student a short scene and then ask what one of the people in the scene would say. To earn credit, students must demonstrate both that they understand vocabulary that describes communicative intention, such as whines, brags, argues, criticizes, and politely turns down, and be able to convey the appropriate intonation in their responses.

Sample Items:

| Sample item <br> for girls: | "Jasmine always whines when her parents won't let her have her way. Her mother won't let her buy candy in the grocery <br> store. What do you think Jasmine might say?" |
| :--- | :--- |
| Sample item <br> for boys: | "Jarred always whines when his parents won't let him have his way. His mother won't let him buy candy in the grocery store. <br> What do you think Jarred might say?" |

[^7]
## SUBTEST 14

## Digit Span Forward

Purpose: To measure attention and short-term memory.

Task: Administer the subtest by asking the student to listen to a series of numbers (spoken at the rate of one per second) and then repeat the numbers exactly as you said them. The number series become longer as the subtest progresses.

Sample Items:

| Stimulus | Student's response |
| :--- | :---: |
| "4-2" |  |


| Stimulus | Student's response |
| :--- | :--- |
| "8-6" |  |

## SUBTEST <br> 15

## Digit Span Backward

Purpose: To assess auditory verbal working memory. This subtest has reduced language load in comparison to the Following Directions and Story Retell subtests

Task: Ask the student to listen again to a series of numbers (spoken at a rate of one per second). This time, ask them to repeat the numbers in backward order. As before, the number series become longer as the subtest progresses.

Sample Items:

| Stimulus | Student's response |
| :--- | :---: |
| "4-2" |  |


| Stimulus | Student's response |
| :---: | :---: |
| " $8-6$ " |  |

## Top 5 Questions about

3. Can you compare the results of the subtests?

Yes, but it doesn't give you separate scores that are broken down in this way, for two reasons. First, research does not support subtypes of receptive and expressive language disorders that vary along this dimension (note the removal of these subcategories from DSM-5). Second, any language assessment task requires at least some integration of language input and output, so to offer separate scores would be artificial.
2. How can I use TILLS results to inform instruction and intervention?

The TILLS Examiner's Manual provides case studies that illustrate the progression from TILLS test scores to curricular considerations. Note that TILLS subtests are curriculum relevant, meaning they reflect the language demands of the curriculum. To be curriculum based, assessment must be performed using the student's actual curricular materials and applying informal assessment methods, such as targeted probes (e.g., oral or written language samples) and dynamic assessment procedures (i.e., involving a sequence of test-teach-retest).

Also, because subtest scores may reflect multiple areas of functioning, treatment goals should not be based on single subtest scores. In the case of reading comprehension, for example, a student's individualized plan might need to include goals for strengthening reading decoding skills as well as improving vocabulary knowledge and syntactic skills to aid in comprehension. Such decisions are based on the overall performance profile of the individual student and concerns about the student's needs in relationship to academic demands of the curriculum.

Yes. All of the TILLS subtests were normed on the same population of students, so you can compare results from different subtests and know that the results are psychometrically sound.
4. Should you always give a student the entire assessment each time?

You may administer single subtests or combinations of them as well as the entire test. We do recommend administration of all TILLS subtests to develop a comprehensive profile of a student's relative strengths and weaknesses. You should be able to administer all 15 subtests to most students in one 70- to 90-minute session or two 45-minute sessions. If shorter sessions are required, they should be completed in no more than 4 weeks.
If you only want to determine if a student has a disorder, you would only need to administer the subtests that identify language and literacy disorders in children your student's age. For tracking change in a particular skill area, you may wish to administer only subtests that relate to that skill area. (Ten of the subtests can be given as standalone measures.)

## 5. Who can administer TILLS?

TILLS can be administered by any professional who has received training on working with children and adolescents with disabilities and administering and scoring individualized standardized assessments. This includes speech-language pathologists, special educators, reading specialists, learning disability specialists, neuropsychologists, and educational psychologists.

## TILLS

## Get TILLS Training

## 

## In-person training

Led by Michele Anderson, Ph.D., CCC-SLP and/or Nickola W. Nelson, Ph.D., CCC-SLP
Get step-by-step training in administering and scoring the subtests, conducting TILLS in a time-efficient way, and using TILLS to identify disorders. You can also choose from a list of other topics for the speakers to cover. For a one-day seminar, choose two of the following modules to round out your session; for a two-day seminar, select 4-6 modules.

- Exploring specific student profiles in more depth (e.g., dyslexia)
- Progressing from the TILLS profile to intervention decisions
- Using TILLS district-wide, or for tracking student changes
 over time
- Understanding the quadrant model, psychometric properties of the TILLS, or research uses
- Using TILLS with special populations such as students with autism
- Gathering multiple perspectives from teachers, parents, students, or others using the SLS

Learn more: http://www.brookespublishing.com/tills-training

## Virtual training

Contact Dr. Michele Anderson at manderson@brookespublishing.com to inquire about virtual training opportunities available before or after purchasing TILLS.


## Visit the TILLS website

At your TILLS online resource center, you can:

- Watch an introductory TILLS video
- View free webinars on topics like identifying dyslexia and using the SLS
- Read a Q\&A with the TILLS developers
- Download a technical excerpt
- Find answers to your TILLS questions with FAQs

- and more!


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-Sue Torney, M.A., CCC-SLP, speech-language pathologist

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[^1]:    Note: Trainees each should purchase a Practice Kit for use in their coursework or TILLS training session. Instructors should have their own Practice Kit, and they may request a desk copy of the Examiner's Manual (as it is not included in the Practice Kit).

[^2]:    (Key: DSB, Digit Span Backward; DSF, Digit Span Forward; DSR, Delayed Story Retelling; FD, Following Directions; LC, Listening
    Comprehension; NWRead, Nonword Reading; NWRep, Nonword Repetition; NWSpell, Nonword Spelling; PA, Phonemic Awareness; RC, Reading Comprehension; RF, Reading Fluency; SC, Social Communication; SR, Story Retelling; VA, Vocabulary Awareness; WE-Disc, Written Expression-Discourse Score; WE-Sent, Written Expression-Sentence Score; WE-Word, Written Expression-Word Score.)

[^3]:    Excerpted with adaptations from the TILLS ${ }^{\text {TM }}$ Examiner's Manual, and the Test of Integrated Language and Literacy Skills ${ }^{\text {TM }}$ (TILLS ${ }^{\text {TM }}$ ) by Nickola Wolf Nelson, Ph.D. Elena Plante, Ph.D., Nancy Helm-Estabrooks, Sc.D., and Gillian Hotz, Ph.D. Copyright © 2016 by Paul H. Brookes Publishing Co. All rights reserved.

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