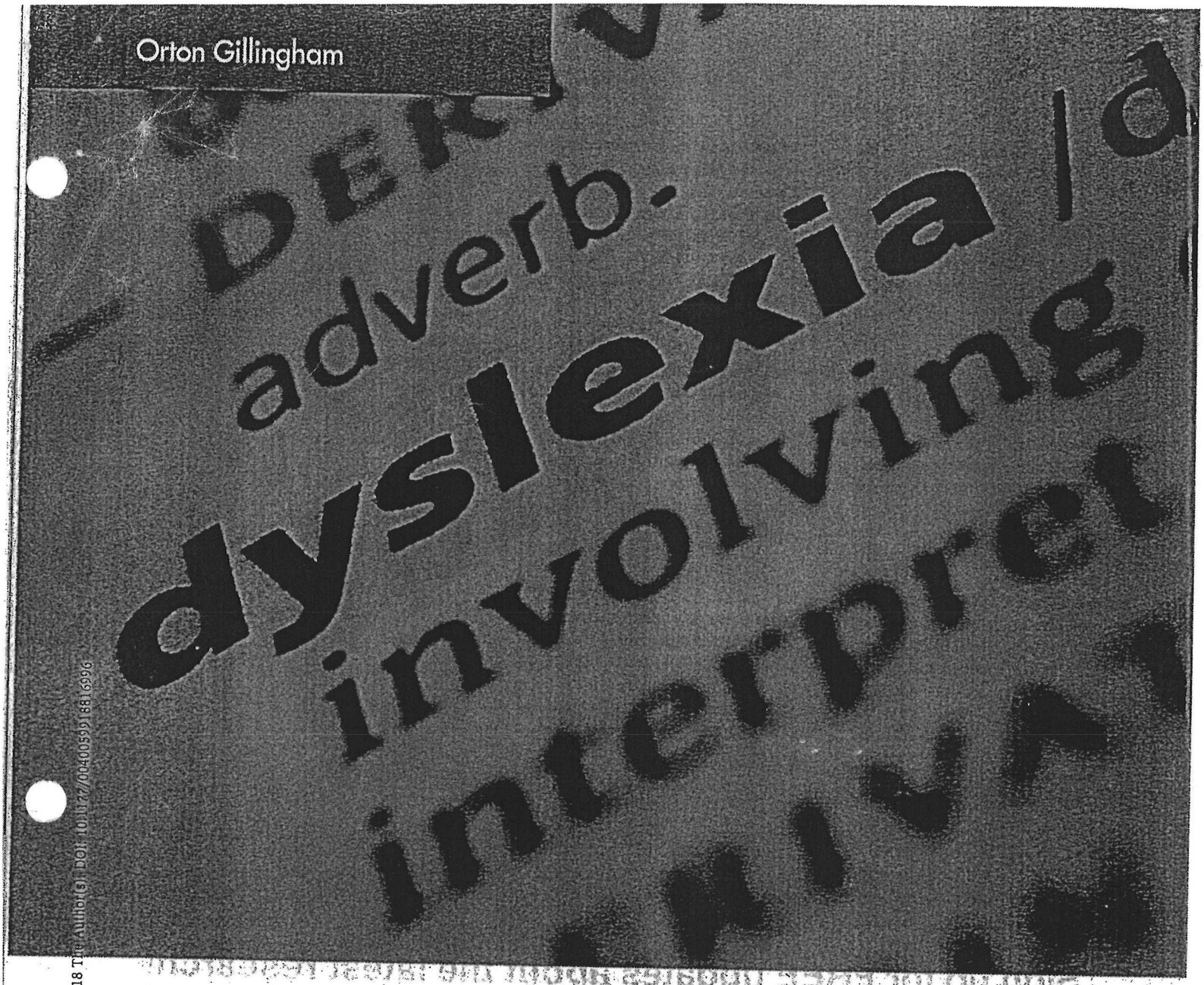

TEACHING Exceptional Children, Vol. 51, No. 3, pp. 240–249. Copyright 2018 The Author(s) DOI: 10.1177/0040059918816996

Orton Gillingham

Who, What, and How

Kristin L. Sayeski, Gentry A. Earle, Rosalie Davis, and Josie Calamari

Hannah Thomas and Rubia McDaniels, two special education teachers, attended a regional conference on reading disabilities. During the conference, several speakers mentioned Orton Gillingham (OG) in reference to the type of instruction provided to students with dyslexia. After one of the presentations, Hannah turned to Rubia and stated, "I am a little embarrassed, but after 10 years of teaching reading to kids with learning disabilities, I have no idea who or what Orton Gillingham is. Is this a program or curriculum we could get for our school? How would it be different from what we are already doing for intervention?" Rubia shook her head and said, "I am in the same boat. Over the years, I have had parents mention it to me, but I have always responded by explaining how the instruction I provide is based on the five big ideas in reading and supported by research. It probably wouldn't hurt to find out more about Orton Gillingham as I would love to provide a more detailed response to parents about what it is."

For many, the terms *dyslexia* and *Orton Gillingham* go hand in hand, yet much is misunderstood about both terms. Dyslexia is a specific learning disability that is neurobiological in origin and results in difficulty with accurate or fluent word recognition, reading, and spelling (International Dyslexia Association [IDA], 2014). However, dyslexia is commonly and incorrectly associated with problems in visual processing—letters jumping around a page or reversals (Washburn, Joshi, & Binks-Cantrell, 2011). OG is an approach to teaching individuals with dyslexia to read based on principles established by Samuel T. Orton and Anna Gillingham, but it is commonly and incorrectly described as a program or curriculum.

Even though Orton and Gillingham established their foundational principles for reading instruction in the 1930s and 1940s, the methodology developed as a result of their work is still considered by many to be the signature approach for addressing reading disabilities. Rose and Zirkel (2007) found 64 cases of litigation wherein parents sued school districts in order for their children to receive OG-based instruction. Many specialized private schools for students with learning disabilities offer reading programs designed around the principles of OG (Hanford, 2017; Rose & Zirkel, 2007). Yet, given the specialized training required to implement OG, many public school teachers are not familiar with OG and have not received preparation in the foundational knowledge and skills associated with a language-based approach to reading instruction (Budin, Mather, & Cheeseman, 2010; Youman & Mather, 2013). As a result, OG-based instruction may not be equally accessible to public school students from lower socioeconomic backgrounds, including culturally and linguistically diverse students with dyslexia.

Who and What Is Orton Gillingham

Dr. Samuel T. Orton (1897–1948) was a neuropsychiatrist and pathologist who was particularly interested in the causes of reading failure and related language-processing difficulties. Anna Gillingham (1878–1963) was an educator and psychologist who had a deep understanding of language. Encouraged by Dr. Orton, Gillingham published her first set of instructional materials in the mid-1930s (Gillingham & Stillman, 1936). Given their mutual interest in the structure of language and how this structure is internalized by individuals in order for reading to occur, Orton and Gillingham worked to create an approach to reading that (a) explicitly taught students elements of language (e.g., phonology, syllabification, morphology; see Table 1 for reading terminology and definitions) and (b) facilitated students' automaticity in applying this knowledge to the decoding (reading) and encoding (spelling) of language. Thus, their approach to reading instruction was based on breaking down the components of language into individual and overlapping skills and then creating instructional activities designed to promote mastery and automaticity of those skills for students with dyslexia (Uhry & Clark, 2005).

An OG approach has been variously described as language based, multisensory, flexible, cognitive, systematic, explicit, and cumulative (Davis, 2011; Sheffield, 1991). Given the extensive training required, OG practitioners are best described as professionals with a deep understanding of language who are skilled in the delivery of specific OG-based techniques required to systematically teach struggling individuals to read (see Table 2 for sample requirements for practitioner certification). Therefore, although the day-to-day implementation of OG will vary slightly from practitioner to practitioner, OG instruction will reflect a similar structure, include a consistent nomenclature, and possess features that will be constant across all implementations. In short, it is easy to identify OG, if one knows what to look for.

After a quick search online, Hannah and Rubia found that an introductory 30-hour course was being offered in their area that summer. Their principal agreed to send them to this weeklong professional-development training. Hannah and Rubia knew that this would be the first step in understanding what OG is. They were curious to see if the methods they learned could be incorporated into their teaching of students who had reading-based learning disabilities.

Distinguishing Features of OG

Several distinguishing features of OG facilitate student learning. These features include (a) direct, systematic, incremental, and cumulative lessons; (b) cognitive explanations; (c) diagnostic and prescriptive methods; (d) linguistics-based instruction; and (e) multisensory engagement (see Table 3 for descriptions and examples of these features). These features are in alignment with many national syntheses of research, such as the National Early Literacy Panel (2008)

Table 1. Reading Terminology and Definitions

Terminology	Definition
decoding	The ability to translate a word from print to speech, usually by employing knowledge of sound-symbol correspondences
encoding	Using individual sounds to spell letters and words
grapheme	A letter or letter combination that represents a single phoneme (e.g., *ch* = /ch/, *d* = /d/)
keywords	Words taught to students to help them learn letter sounds; for example, a keyword for the short *a* sound could be *apple* (*a* = *apple*; *b* = *bat*; *c* = *cat*)
morphology	The study of word forms, including affixes and root/base words
orthography	Written system that represents language
phoneme	A speech sound that combines with others to make words
phonemic awareness	The ability to break down and manipulate the individual sounds in spoken language
phonics	A method of teaching reading that emphasizes the sounding out of letters, groups of letters, and familiar patterns of letters in order to read words
phonology	The study of the rule system that governs the sequencing of phonemes in a language
schwa	A schwa sound, /ə/, is a brief vowel sound that occurs only in unaccented syllables and sounds like a short *u* (e.g., *again, celebrate, occur*).
syllabification	The division of words into syllables
syllable	Uninterrupted segment of speech consisting of at least one vowel sound

and the National Reading Panel (2000), as well as more recent, systematic reviews of the research literature. Specifically, defining characteristics of an OG approach—explicit, systematic, and phonics based—have been supported by research on effective reading instruction (Brady, Braze, & Fowler, 2011; Kilpatrick, 2015). For example, recent research has revealed the value of synthetic phonics approaches (Brady et al., 2011). Within synthetic approaches, students are taught to attend to letters and letter patterns when decoding words. Research has demonstrated that instruction that reflects a synthetic (grapheme- or letter-level) approach to decoding instruction can boost students' word and nonword reading ability (Jeynes, 2008; Johnston, McGeown, & Watson, 2012; Johnston & Watson, 2004). In addition, integrating encoding instruction within phonics-based instruction has been shown to improve word reading, phonological awareness, comprehension, and spelling outcomes (Weiser, 2012; Weiser & Mathes, 2011). An OG approach will include attention to letter-level instruction and integration of encoding instruction.

Although many features of the OG approach align with research on effective reading instruction, it is important to note common criticisms of OG. For example, in Kilpatrick's (2015) comprehensive review of reading research, he identified three components of reading intervention that appear central to the effective remediation of reading difficulties. Specifically, reading intervention programs that provided (a) basic and advanced phonemic awareness instruction, (b) explicit decoding instruction, and (c) ample opportunities to apply reading skills to connected text resulted in superior gains in terms of student achievement. Kilpatrick found that although OG-based instruction provided explicit instruction in phonemic awareness and decoding as well as applied opportunities, OG fell short in terms of providing instruction in "advanced phonemic awareness." Basic phonemic awareness instruction involves teaching students to segment (e.g., "Say the sounds in *cat*: /k/ [pause], /a/ [pause], /t/.") and blend (e.g., "Listen to the following sounds: /k/[pause], /a/ [pause], /t/ [pause]. Now say them fast: *cat*."). In contrast, advanced phonemic awareness involves the more challenging tasks of phoneme deletion (e.g., "Say the word *cat*. Now say the word without the /k/ sound.") and substitution (e.g., "Say the word *cat*. Replace the /k/ sound with /m/: *mat*."). Although Kilpatrick identified the lack of advanced phonemic awareness instruction within OG, the individualized nature of OG implementation does not prohibit advanced phonemic awareness instruction (i.e., phoneme deletion and substitution can easily be combined with OG; see IDA, 2010), and programs based on OG principles explicitly include advanced phonemic awareness instruction (e.g., Lindamood Phoneme Sequencing Program, a program reviewed favorably by Kilpatrick, 2015).

Table 2. Academy of Orton Gillingham (OG) Practitioners and Educators (AOGPE): Certification Levels and Requirements

Level of certification	Training requirements	Qualifications
OG Classroom Educator (OGCE)	Prerequisite: Bachelor's degree Course work: 30 hours Practicum hours: 50 hours (over 8 months) Observations: 5 Readings: As assigned	An OGCE is qualified to provide OG literacy instruction to classes or small groups (i.e., Tier 1 instruction).
Associate	Prerequisite: Bachelor's degree Course work: 60–70 hours Practicum: 100 hours (over 8 months) • 100 hours 1:1 or • 50 hours 1:1 and 50 hours small group or classroom setting Observations: 10 Readings: AOGPE Associate reading list 2017	An Associate is qualified to provide 1:1 (A-level) or 1:1 and small-group (B-level) OG instruction under the mentorship of an Academy Fellow.
Certified	Prerequisite: Bachelor's degree Course work: 100 hours (plus 60 from Associate) Practicum hours: 200 hours (over 2 academic years) Observations: 10 (40- to 60-minute lessons) Readings: AOGPE Certified reading list 2017	A Certified member is qualified to be an independent practitioner of OG (Tier 3 instruction).
Fellow	Prerequisite: Master's degree Course work: 90 hours (plus 160 from Certified) Practicum: 300 hours (over 3 academic years) Observations: 10 • Teaching courses • Supervising trainees • Conducting observations • Providing feedback to trainees Readings: AOGPE Fellow reading list	A Fellow is qualified to train and supervise other in the OG approach and well as provide direct services.

Note. There are different routes to certification offered through different organizations.

Another criticism of OG is its focus on the use of multisensory techniques. It is important to note, though, that the integration of multisensory techniques within OG is not an application of the visual-auditory-kinesthetic (VAK) learning styles theory. The VAK learning styles theory posits that individuals have learning modality preferences and that teaching to a singular, preferred modality aids learning (Willingham, Hughes, & Dobolyi, 2015). Learning styles theory is largely unsupported by research (Cuevas, 2015). In contrast, in an OG approach, all modalities are engaged to support repeated practice, varied instruction, and multiple representations of concepts. These features of instruction are supported by research (Brown, Roediger, & McDaniel, 2014). Similarly, research on other reading programs that include a multisensory focus have been demonstrated as successful (see Kilpatrick, 2015).

Therefore, although there are many signature elements of an OG approach (e.g., unique terminology used for instruction, such as the term *phonograms* to refer to letter-sound cards; elements included within instruction, such as strategies for teaching syllabification), the delivery of an OG approach aligns with many features identified by research as essential for the delivery of effective reading instruction and intervention. Of course, there are other highly systematic, phonics-based programs that are not based upon the principles of OG that also reflect evidence-based practices and are effective for students with dyslexia or who are at risk for reading failure (see Brady et al., 2011; Kilpatrick, 2015). Deep understanding of the similarities and differences across programs can enrich teachers' understanding of reading instruction and development.

During the week of training, Hannah and Rubia immersed themselves in the language and methods of OG. During breaks and at lunch, they would discuss certain students who would have benefited from an understanding of syllable types to aid in the pronunciation of words (see Table 4 for an overview of OG syllable types) or how they had always taught letter sounds but did not have a strong scope and sequence for how those sounds should be introduced or what the sequence for subsequent phonics instruction should look like.

Table 3. Distinguishing Features of an Orton Gillingham (OG) Approach

Feature	Definition	What it looks like in an OG lesson
Direct, systematic, incremental, and cumulative lessons	Teacher determines what and how instruction will occur. Includes modeling, student engagement, and feedback. The term *drill* is used to reflect the high levels of student engagement and repetition included within individual lessons. Instruction is based on a clear scope and sequence of a hierarchy of skills; a similar format to each lesson is followed.	*Sample lesson plan outline* • Visual drill (phonogram cards) • Auditory drill (dictate phonograms) • Sound blending (reading words) • Reteach confusing concepts (e.g., b/d, sound cousins); review previously taught skill • Learned (nonphonetic) word instruction (reading and spelling) • New concept/rule/phonogram/syllable instruction • Spelling work • Sentence work • Oral reading (decodable text)
Cognitive explanations	Teacher explains rules for spelling; student understands why a word is pronounced or spelled in a particular way. Students apply their understanding of language when reading and spelling.	Students are taught rules that help them understand why, such as the following: • The FLOSS rule: If a one-syllable word ends in a vowel immediately followed by the consonant *f, l,* or *s,* double that consonant. • Use *ck* to spell /k/ when the sound follows a short vowel. • *C* and *g* are soft when followed by *e, i,* or *y.*
Diagnostic/ prescriptive methods	All responses are monitored and subsequent lessons are built on data collected during previous lessons.	An OG practitioner will plan the next lesson based on how the student performed in the current lesson. In addition, the practitioner will use an assessment, such as the Gallistel-Ellis Test of Coding Skills or the Wilson Assessment of Decoding and Encoding, on a regular basis (e.g., after about 25 lessons) in order to monitor progress.
Linguistics-based instruction	Initial decoding and spelling work progresses to include instruction on syllables, morphemes, syntax, semantics, and grammar. Reading, writing, and spelling instruction are integrated within each lesson.	Early lessons include instruction on sound-symbol relationships (/b/ = b), blending (/b/-/a/-/t), segmenting for spelling (/b/ = b; /a/ = a; /t/ = t), and handwriting (legible letter formation). Later lessons address word families (e.g., *-ild, -old, -ind, -ost*), syllable types (e.g., open, closed), morphemes (e.g., common suffixes and prefixes), syntax, semantics, grammar, reading comprehension, and written expression.
Multisensory	Instruction includes auditory, visual, and movement-based activities to emphasis features of instruction.	When teaching the short /a/ vowel sound, students hear the sound, repeat the sound, learn the correct position of mouth and tongue, visualize the letter, and write the letter. This process will be reiterated multiple times, and different prompts will be provided (e.g., "Show me what your mouth looks like for the short /a/ sound") to reinforce learning and automaticity.

The teachers lamented the fact that spelling instruction had seemed like a luxury—something they did not have time to address when issues related to reading were so pressing. However, during the training, they saw how easy it was to integrate spelling instruction within reading instruction by having students encode immediately following decoding practice (i.e., see a letter, say the sound; hear a sound, write the letter; see a word, decode the word; hear a word, spell the word; hear a sentence, write the sentence). They learned strategies and procedures and wrote down many references to workbooks or other readings that would deepen their understanding of language development and how to apply that knowledge to teaching. They also came to the realization that they had a lot

Table 4. Orton Gillingham REVLOC Mnemonic for Six Syllable Types

Syllable type	Explanation	Examples
R = *r* controlled	Syllable that has an *r* immediately following a vowel wherein the *r* distorts the sound of the vowel	*ar, or, er, ir, ur, ear, our, barn, star, yard, fern, bird, torn, worn, burn, purse*
E = "magic" *e*	A syllable with the long vowel–consonant–silent *e* pattern	*bake, game, Pete, pine, bone, poke, flute*
V = vowel teams	A syllable containing two or more vowels that represent one sound	*oak, seen, bean, pie, train, cheek, boat, tray, bow*
L = consonant + *le*	An unaccented final syllable containing a consonant and *le*; always has a schwa sound for the vowel sound	*bubble, handle, humble, circle, jungle*
O = open	A syllable ending with a single vowel; in a one-syllable word, the vowel is usually long, but in an unaccented syllable, it may have a schwa sound (e.g., *alone*)	*hi, go, me, so, she, lady, spider, music, pilot, depend*
C = closed	A syllable in which a single vowel is followed by a consonant; the vowel is usually short but in a word of more than one syllable, *t* may have a schwa sound (e.g., *cotton*)	*at, mat, if, sit, bet, rabbit, pencil, kitten, muffin, insect*

more work to do in order to "do" OG well. At the workshop, some of the participants talked about using specific programs that were based on OG, such as the Wilson Reading System (Wilson, 2017). They wondered what these programs were and how they differed from what they were learning.

Unbranded and Branded OG

Individuals who are certified by professional organizations, such as the Academy of Orton Gillingham Practitioners and Educators and the Institute for Multi-Sensory Education, have the knowledge and skills necessary to make use of a variety of materials in order to craft individualized OG-based lessons. This type of instruction is referred to by the Institute of Education Sciences as "unbranded Orton Gillingham." In contrast to these certified practitioner-developed plans, several commercial programs have been developed based upon the sequential, multisensory principles of OG. These programs are referred to as "branded OG" (see Table 5 for a sample list of programs). For some practitioners, the advantage of branded OG programs is that they provide additional structure and format for instruction, which can simplify the planning process. Although many programs contain the common OG features, such as explicit instruction in syllabification and multisensory methods, unique variations include Wilson Reading Systems' "sound-tapping system" and Lindamood-Bell's use of imagery. These signature methods reflect interpretations or enhancements of original OG practices.

On the last day of training, a group of participants (teachers and private tutors) went out to lunch together. Among this group were a couple of people who had prior experience using OG-based programs, such as the Wilson

Table 5. Unbranded and Branded Orton Gillingham Instruction

Unbranded Orton Gillingham	Branded Orton Gillingham (i.e., commercially available programs)
Customized instruction delivered by certified Orton Gillingham practitioners	• Alphabetic Phonics • Barton Reading and Spelling System • Herman Method • Language! • Lindamood-Bell • Recipe for Reading • S.P.I.R.E. • Spalding • Take Flight • The Slingerland Approach • The Writing Road to Reading • Wilson Reading System

Table 6. Lesson Plan Framework

Focus area	Lesson activity	Time
Word study/ decoding	Phonological awareness/phonics activity • Phonemic awareness (sans letters) • Visual drill (phonograms, sound cards, magnetic letters) • Name-keyword-sound • Letter-sound • Sounds only • Sound-letter work (letters and letter patterns/phonograms) • Teach new concepts (e.g., consonants/vowels, digraphs) • Make words with sounds or cards • Play with word structure (remove/add letters/word parts)	
	Syllable work • Teach or review syllable types (as appropriate) • Coding/marking works • Syllable division with cards or mini-whiteboards	
	Decoding + irregular (learned) words • Wordlist reading (followed by questions/extensions) • Word cards (fluency games) • Learned word instruction (SOS, gel pads, air writing)	
Spelling + written expression	Spelling • Auditory drill/dictation (spell sounds, words) • Teach/review concepts for spelling (rules)	
	Dictation (syntax + handwriting) • Written dictation work (sounds, words, sentences) • Handwriting practice • Syntax and paragraph writing work	
Fluency + comprehension	Controlled sentence or passage reading (decodable text)/fluency • Sentence reading (silent reading, oral reading, scooping) • Passage reading (silent reading, oral reading, scooping)	
	Listening comprehension (grade-level text) • Vocabulary instruction • Morphology instruction • Teach comprehension strategies • Apply comprehension strategies	

Reading System and Barton Reading and Spelling System. Hannah and Rubia could now see the difference between an OG practitioner—as person who has years of training and experience designing and delivering OG instruction—and a person who uses a branded OG program, who may have training only in that specific program. With their new understanding of OG, Hannah and Rubia knew that OG practices were in alignment with the principles of effective reading instruction for students with learning disabilities, but they weren't sure if research had demonstrated that one approach or program was best.

Efficacy Research on OG Implementation

Although an OG-based approach to reading would be considered research based (i.e., aspects of the approach have been demonstrated as effective by research), research on the effectiveness of an OG-based intervention, as a whole, is challenged by threats to internal and external validity (Alexander & Slinger-Constant, 2004; Ritchey & Goeke, 2006; What Works Clearinghouse, 2010). Internal validity is how well confounding variables are controlled for by the research design, and external validity is the capacity of the findings generated by the study to be applied to similar populations (e.g., other students with reading disabilities). Specific challenges to internal and external validity include variation in implementation and context of delivery, respectively.

A crucial aspect of a strong research study is tight control over the variables involved. Therefore, the independent

variable—in the case of OG, the intervention delivered should be as consistent as possible across participants. A clearly operationalized and uniformly delivered intervention increases the confidence with which a researcher can say, "Students with reading disabilities who received *x* intervention for *y* duration made, on average, *z* amount of gains." This confidence is referred to as the internal validity of a study. The challenge with OG is that it is not a standardized program, and implementation varies due to differences in student need and teacher selection of particular instructional activities. Although advocates of OG note that the individualization of intervention delivery is a strength of the program (Davis, 2011; Sheffield, 1991), it does present challenges for research. Other common, uncontrolled variables in prior research on OG have included variation in duration of intervention session, intensity of intervention, and focus of intervention (Ritchey & Goeke, 2006).

In addition to the challenge of establishing strong internal validity, research on OG is also hampered by threats to external validity. One way to increase the external validity of a study is through random assignment of participants from a target population to either a treatment or control condition. Many OG studies fail to randomly assign students to condition (Richey & Goeke, 2006). For example, if the population of interest was third to fifth graders with reading disabilities who are performing at least two grade levels below in reading, a strong research study might identify 90 students who meet that profile and then randomly assign students to different treatment groups: One group receives OG, one group receives Super Duper Reading, and one group receives whatever regular reading instruction is provided in their school (i.e., the "business-as-usual" group). In this type of design, individual variations in students are controlled for through random assignment. However, OG is intensive (typically delivered one-on-one or in small groups), expensive, and dependent on a highly qualified practitioner. As noted previously, students typically receive OG instruction through tutors or private schools (Joshi, Dahlgren, & Boulware-Gooden, 2002; Rose & Zirkel, 2007). In addition, families or schools may object to the use of a control group, as some students will be denied access to the specialized instruction (Rose & Zirkel, 2007).

Although research on branded OG programs can also suffer from similar limitations, such as lack of control groups or random assignment (Ritchey & Goeke, 2006), the structure of the programs and more standardized implementation has resulted in a handful of studies demonstrating "potentially positive effects," particularly in the areas of alphabetics and reading fluency (e.g., Lindamood Phoneme Sequencing and Wilson Reading System; see What Works Clearinghouse, 2010).

It is important to note that these challenges to internal and external validity are common within education research (Hempenstall, 2014). As a result, the majority of literacy approaches and programs used within general and special education fall under the category of *research based* rather than the more stringent *evidence based* category. This lack of research, however, should not imply that all programs are equally effective or ineffective. The limitations in research highlight the need for teachers to be savvy consumers and the importance of data to guide teachers' decision making. The more teachers understand about language and reading development, the more competent they will be in their ability to screen programs to see if necessary knowledge and skills are being addressed (Binks-Cantrell, Washburn, Joshi, & Hougen, 2012). Data on student performance will also serve as a guide for determining program efficacy.

By the end of their 30 hours of training, Hannah and Rubia were exhausted, inspired, and full of new ideas. They decided to take some well-deserved time off and regroup in July to map out their plan for the next school year. By July, they were ready to take a long, hard look at their current reading instruction. Knowing that they did not have the resources or time to train in a specific program, they decided to table further exploration of branded OG programs. First, they wanted to see what they could learn from applying some of the foundational concepts covered in their initial training. They knew that this hands-on application of OG could also serve as a guide if they did decide to seek training in a specific program at a later date. Carefully spreading out all of the OG content and materials on a table, they identified three areas that they could immediately make changes to: scope and sequence, daily lesson plans, and assessment.

OG and Special Education: Practice Applications

Although special educators and other practitioners who complete a 30-hour introductory OG training session will not possess the deep knowledge and skills equivalent to those of a certified OG practitioner, this introductory, basic training is ample to provide a wealth of new strategies that can complement the delivery of reading intervention for students with reading disabilities or who are struggling to learn to read. For example, training will include materials and resources related to a scope and sequence for instruction. A strong scope and sequence reflects a progression of less complex to more complex skills, presents the most functional skills before less common skills, and includes a plan for teaching prerequisite concepts through appropriate scaffolding. In addition, participants will learn how to use informal assessments, such as the Gallistel-Ellis Test of Coding Skills (Gallistel, 2005) or the CORE Phonics Survey (Diamond & Thorsnes, 2018), that can be used for initial planning and as a progress-monitoring tool.

To begin mapping out their plan for reading instruction, Hannah and Rubia looked at the scope and sequence they received during their training. They knew that the underlying principle of

OG was to systematically build students' understanding of word parts. For example, for their beginning readers, after teaching students consonant-vowel-consonant (CVC) words (e.g., mat, sad, hit, bed*), they would introduce consonant digraphs (e.g.*, sh, ch, th, ck*) and then slowly add in beginning and ending blends (e.g.*, st, sp, dr, fr, scr*) to teach CCVC and CVCC words. They used their scope and sequence to collect materials (e.g., sound cards, rules posters) and begin thinking about planning. Next, they designed a new lesson plan framework that included daily drilling of phonograms (cards with letters and letter combinations that represent sounds; e.g.*, ck = */k/*; b = */b/*; s = */s/ and /z/*) coupled with dictation work (Table 6). To accompany this, they had a handwriting guide they would use with students to help them master accurate letter formation. Finally, the teachers knew that their first task when students arrived back at school would be to conduct informal assessments. These assessments would help them identify students' specific skills and determine initial reading groups. They could also use the assessments to track students' progress over the course of the year. They selected assessments for the following areas: alphabetic knowledge (letter-sound recognition), concepts of print, phonological awareness, phoneme awareness, word and sentence reading, and connected text reading (i.e., an informal reading assessment).*

Conclusion

The history of intervention for students with dyslexia is intertwined with the history of Orton and Gillingham and the curricula based on their work. An understanding of fundamental principles of OG can help special educators understand foundational elements of literacy instruction. Simply studying resources associated with OG implementation can deepen a teacher's understanding of the structure of language and why students may struggle to understand certain concepts (e.g., Moats' [2010] text *Speech to Print*). Knowing *why* a word is pronounced in a particular way can be empowering for teachers—stronger explanations and new strategies for remediation stem from understanding language development—and can allow for more insightful assessment of students' strengths and needs.

The English language is complex but not insurmountable. Every time teachers engage in professional development or training that enhances their knowledge of the structure of language and strategies for teaching this structure to students, they are becoming more skilled technicians of reading. For students with dyslexia, a knowledgeable and skilled teacher can make all the difference.

By the time the new school year began, Hannah and Rubia were ready to begin their enhanced literacy instruction. They were excited about the new scope and sequence and particularly ready to integrate spelling and handwriting within daily reading, but Rubia wanted more. She contacted a local "OG Fellow" and was taking her first steps toward pursuing official certification.

References

Alexander, A. W., & Slinger-Constant, A. (2004). Current status of treatments for dyslexia: Critical review. *Journal of Child Neurology, 19*, 744–758. doi:10.1177/08830738040190100401

Binks-Cantrell, E., Washburn, E. K., Joshi, R. M., & Hougen, M. (2012). Peter effect in the preparation of reading teachers. *Scientific Studies of Reading, 16*, 526–536. doi:10.1080/10888438.2011.601434

Brady, S. A., Braze, D., & Fowler, C. A. (2011). *Explaining individual differences in reading: Theory and evidence*. New York, NY: Psychology Press.

Brown, P. C., Roediger, H. L., III, & McDaniel, M. A. (2014). *Make it stick: The science of successful learning*. Cambridge, Massachusetts: Belknap Press of Harvard University Press. doi:10.4159/9780674419377

Budin, S. G., Mather, N., & Cheesman, E. (2010) Examining promising practices to improve linguistic knowledge and inform practice in teacher education. *Perspectives on Language and Literacy, 36*, 13-16.

Cuevas, J. (2015). Is learning styles-based instruction effective? A comprehensive analysis of recent research on learning styles. *Theory and Research In Education, 13*, 308–333. doi:10.1177/1477878515606621

Davis, J. B. (2011). *The effects of an Orton-Gillingham-based reading intervention on students with emotional/behavior disorders* (Unpublished doctoral dissertation, University of Toledo, Toledo, OH).

Diamond, L., & Thorsnes, B. J. (2018). *Assessing reading: Multiple measures* (2nd ed.). Novato, CA: Arena Press.

Gallistel, E. (2005). *Gallistel-Ellis Test of Coding Skills*. Madison, WI: Montage Press.

Gillingham, A., & Stillman, B. W. (1936). *Remedial work for reading, spelling and penmanship*. New York: Sackett & Wilhelms Lithographing & Printing Corporation.

Hanford, E. (2017). Hard to read: How American schools fail kids with dyslexia. *American Public Media Reports*. Retrieved from https://www.apmreports.org/story/2017/09/11/hard-to-read

Hempenstall, K. (2014). What works? Evidence-based practice in education is complex. *Australian Journal of Learning Difficulties, 19*, 113–127. doi:10.1080/19404158.2014.921631

International Dyslexia Association. (2010). *Knowledge and practice standards for teachers of reading*. Baltimore, MD: Author.

International Dyslexia Association. (2014). *IDA dyslexia handbook: What every family should know*. Baltimore, MD: Author.

Jeynes, W. H. (2008). A meta-analysis of the relationship between phonics instruction and minority elementary school student academic achievement. *Education and Urban Society, 40*, 151–166. doi:10.1080/19404158.2014.921631

Johnston, R. S., McGeown, S., & Watson, J. E. (2012). Long-term effects of synthetic versus analytic phonics teaching on the reading and spelling ability of 10 year old boys and girls. *Reading and Writing, 25*, 1365–1384. doi:10.1007/s11145-011-9323-x

Johnston, R. S., & Watson, J. E. (2004). Accelerating the development of reading, spelling and phonemic awareness skills in initial readers. *Reading and Writing, 17*, 327–357. doi:10.1023/B:READ.0000032666.66359.62

Joshi, R. M., Dahlgren, M., & Boulware-Gooden, R. (2002). Teaching reading