Jane Flynn Anderson, Ph.D.
janderson@itafoundation.org

My Research Journey with the Initial Teaching Alphabet (ITA)

Jane Flynn Anderson, Ph.D.

Initial Teaching Alphabet Foundation, Inc.

New York NY

May, 2021

My research using the ITA alphabet for remediation of dyslexia began in 1984. I had just finished my doctoral research investigating whether quantitative EEG (QEEG) recordings during cognitive challenge might validate Dr. Elena Boder's theory of dyslexic subtypes based on reading-spelling error patterns (Boder, 1971, 1973). Our sample of 21 school children identified as dsyphonetic, dyseidetic or mixed dyslexic readers compared to six same-age normal readers revealed significant differences in brain activation patterns during auditory analysis and frustration-level oral reading (Boder & Flynn, 1991; Flynn & Deering, 1989a, 1989b). We found that dsyphonetic (phonologically-impaired) dyslexics differed significantly from their dyseidetic peers, presumed by Dr. Boder to have visual-spatial deficits in the presence of normal auditory processing. Both dyslexic groups also differed from the normal reader group. We did not find evidence of a mixed dyslexic subgroup, whose neurophysiological profile appeared similar to dysphonetic readers.

The ITA alphabet entered my research journey after I reviewed student test scores with Sister Mary Donald, principal of one of the schools where we had recruited participants for our QEEG study. Like a good shepherdess, she demanded, "Now that you've identified my children, how are you going to help them?" The director of our medical foundation where my research lab was located had previously told me that the Initial Teaching Alphabet Foundation of New York was accepting grants. Having heard negative comments from local teachers about the ITA reading program, I was skeptical and told him I would not write a grant for something I didn't believe in. But I checked out the *Early to Read i/t/a Program-Revised* (Tanyzer & Mazurkiewicz, 1963) at our local university and decided that while the teacher's manual and student worksheets were not useful for remediation of dyslexia, the phonemic alphabet and (mostly) phonemic readers might be helpful in remediating the phonological deficits at the core of reading failure for dysphonetic readers.

And so, in 1986 with financial assistance from the ITA Foundation, we continued our neurophysiology investigations and enrolled dysphonetic and dyseidetic children in an aptitude-treatment interaction study of three different conditions; (1) DISTAR (Englemann & Bruner, 1984), a highly-scripted synthetic phonics program;[1] (2) Project Read (Greene & Enfield, 1984), an Orton-Gillingham multisensory analytic phonics program;[2] and (3) a project-developed ITA language experience/oral reading fluency intervention protocol that included: (1) writing of personal narratives using the ITA alphabet to represent sounds of all words, even those the children could read and spell in traditional orthography (TO); and (2) Repeated Oral Assisted Reading (ROAR) using the Early to Read Books 2-5 and the children's own narratives to promote reading automaticity.[3]

Both DISTAR and Orton-Gillingham/Project Read are prominent treatment choices for remediation of dyslexia. I hypothesized that their emphasis on phonics would match the

presumed phonetic strengths of dyseidetic children and circumvent their difficulty with visual memory. Although considerable research supports the use of ITA for early acquisition of reading and writing, I found no references to its use in treatment of dyslexia. However, I hypothesized that it would facilitate reading development for dysphonetic children because it reduces the phonological processing requirements for decoding words and eliminates the complex spelling patterns of our English orthography.

At the same time as the three-year intervention study, our research team continued to collect EEG recordings of dyslexic readers during cognitive challenge conditions. The results of both research strands led to reconceptualization of the neurophysiology of dyslexia (Flynn, Deering, Goldstein, & Rahbar, 1992) and rethinking of how best to intervene (Flynn & Deering, 1993; Flynn, 2000; Lyon, Moats, & Flynn, 1988; Lyon & Flynn, 1991). These findings and revised hypotheses included:

- Neurophysiology results failed to distinguish differences between Boder's mixed and dysphonetic subtypes, while neuropsychological and academic assessments suggested they were simply more-impaired dysphonetic readers, not a separate subtype: They were classified as dysphonetic in our subsequent neurophysiological and intervention research.
- Neurophysiology results also suggested that dyseidetic dyslexics do not have normal phonological processing as posited by Dr. Boder (1971, 1973; Boder & Flynn, 1991). Their bilateral temporal activation patterns suggested over-reliance on phonological processing. This was supported by behavioral data: Their reading was characterized by overt and effortful re-decoding, as though each repetition of a word was encountered for the first time.[4] Additionally, their continued reliance on spelling words phonetically long after peers have moved to orthographically-correct spellings led me to reconceptualize them as dysorthographic dyslexics.
- Three years of aptitude-treatment studies revealed that BOTH dysphonetic and dyseidetic dyslexics made greater gains in the ITA language experience-ROAR condition. This was a surprise that required investigation at a much finer level than simply assignment based on program classification as phonics-based on holistic/linguistic.

My work since 1989 has been to figure out why children with very different neurophysiological, neuropsychological, and academic profiles make greater gains in ITA language experience-ROAR compared to treatments expected to remediate phonological/phonics deficits. Based on three decades of clinical research, I now believe that differences by subtype result from an interaction between the ITA reading and writing protocols and rate of progress, namely:

- Dysphonetic readers make rapid reading growth with ROAR, progressing out of the ITA readers and into traditional orthography texts rather quickly. In one 9-month intervention they make an average of two grade levels in reading accuracy and comprehension. They also increase in reading fluency by 20-30 Words Per Minute

Correct (WPMC). By comparison, after second grade average readers generally increase WPMC by 10 words.[5]

At the same time their poor decoding and non-phonetic spellings of unknown words require an average of two more years of ITA intervention for remediation of phonological deficits. I have come to believe that ROAR creates a pathway around their underlying deficit, allowing them to progress in reading level. This results in sustained motivation for the longer journey to remediation of their phonological deficits. In our clinical studies, many of our dsyphonetic readers continue to attend after-school intervention sessions for three or more years, generally without complaint.

In summary: Dysphonetic readers' response to ITA treatment = rapid reading progress with ROAR; slow remediation of phonological deficit with ITA writing, with an emphasis on analysis of multisyllabic words using Slash and Dash.[6]

- Dysorthographic readers master ITA sound spelling easily because this fits their natural processing style. They need to be moved early on to traditional spelling emphasizing spelling patterns through a discovery approach of (1) sorting same-sound/different-spelling words (e.g., initial /k/ = k or c); (2) discovering the pattern (k before i or e); (3) search for additional words that fit the pattern; and (4) paying attention to surrounding sounds in order to make educated guesses about spelling. This extends their natural tendency from processing words letter-by-letter to learning to focus attention on letter chunks. This is a slow process, usually requiring more than one intervention cycle of 9 months. Equally slow is their journey to reading fluency. From the beginning, they decode the phonetically-regular ITA stories accurately, but at a significantly slower rate than their dysphonetic peers.

  While ROAR intervention is the key to reading automaticity for dysorthographic dyslexics, they need to be constantly pushed to read faster in order to counteract their slow processing style. While their ability to read more accurately increases by an average of two grade levels per school year, it often requires three intervention cycles (9 months, four sessions per week) to approximate average reading speed at higher levels of text complexity.

  In summary: Dysorthographic readers' response to ITA treatment = rapid response to ITA sound spelling in writing personal narratives; slow response to ROAR fluency goals, requiring much longer use of the ITA readers and continuing into traditional orthography texts; slow but consistent spelling gains with emphasis on English spelling patterns using a discovery approach.

We tested these clinical findings in a multiple-baseline subtype-treatment interaction study with 55 students, employing alternating reading accuracy or fluency with writing accuracy or fluency. This study confirmed my hypothesis that students with different profiles of reading

disability respond to different aspects of our ITA treatment protocols and at different rates. Curriculum-based measures suggested that (1) phonological analysis using ITA facilitates development of reading and writing in traditional orthography for both dysphonetic and dysorthographic readers, and (2) Repeated Oral Assisted Reading (ROAR), compared to a protocol emphasizing decoding, results in greater increases in reading accuracy for children with phonological deficits and reading rate for children with both kinds of reading disability. (Flynn & Rahbar, 2021; Meyer & Felton, 1999).

In 1993 I left research and clinical practice to join a teacher education department in a local university, where I continue to use and promote the ITA alphabet for reading interventions. Graduate students in the Master of Arts in Literacy Education program at Saint Mary's University of Minnesota have used small n/single subject designs to validate components of my ITA intervention protocols: ROAR for delayed and/or dyslexic readers (Eaddy, 2014; Ellman, 2017; Rogers, 2012; Siefert, 2013) Slash and Dash for fifth-grade Title One students (Van Handel, 2013), 4th-6th grade LD students (Debner, 2014; Debner & Anderson, 2017) and community college developmental reading students (Moore, 2017).

In 2011 I joined the ITA Foundation Board of Directors and have since worked as Program Officer/trainer for our grant-funded ITA programs. Our current grantees include diverse applications of ITA: (1) integration of ITA writing and vocabulary development featuring Slash and Dash in a 6th grade Language Arts classroom ; (2) ITA interventions for urban Latino students, rural high school struggling readers, and Ojibwe immersion school students; (3) an after-school University ITA Literacy clinic serving 1st-8th grade struggling readers that provides a practicum experience for preservice elementary teachers; (4) a public school reading support program for kindergarten-9th grade struggling readers; (5) ITA intervention for adolescents and adults with reading disabilities and/or English learners; and (6) A Puerto Rico after-school program using ITA writing to promote oral and written language of Spanish-speaking elementary students.

 As of 2017, our Board consists of six educators with experience teaching and supervising ITA intervention projects. Given our expertise and shared commitment to expanding the use of the ITA alphabet, we have been able to expand our free educational resources. These include a website (www.itafoundation.org) featuring a plethora of demonstration videos, intervention protocols and materials free for download, an annual summer conference, and a YouTube channel (www.youtube.com/itafoundation)

In fall of 2020 we planned to initiate a large-scale study of the effectiveness of the ITA protocols, using a standard assessment battery for pre and post-tests, and our standardized intervention protocols: (2) ROAR with ITA and TO texts; (2) ITA narrative writing and (3) Slash and Dash for remediation of phonological deficits; (4) Spelling by Pattern for remediation of orthographic deficits. That study was put on hold when the COVID pandemic disrupted face-to-face sessions. We pivoted to adaptation of the ITA protocols to online formats for the remainder of the 2020-21 academic year. We hope to reinstate our study in the fall of 2021 if

schools are back in regular operation by then. We have highly trained, experienced project managers and a format via Zoom recordings to ensure fidelity of treatment, so hopefully we can replicate our original research on a larger scale with a wider range of students and in a variety of settings. We are especially interested in documenting the progress of our English learners, children in Puerto Rico and adults in Minnesota, as our newest venture in the use of the ITA alphabet for development of English literacy (Anderson, 2017).

NOTES

1. The DISTAR reading program is based on sequential. carefully structured presentation of letter sounds until mastery is achieved on each. Blending individual sounds to decode phonetically-regular words and "saying it fast" to develop automatic word recognition is a major component of the program, which provides detailed scripts for remediation specialists working with children. (Engelmann S. Bruner E. DI STAR Reading. Science Research Associates. Inc .• Chicago. 1984.)

2. The Orton-Gillingham remedial reading program was originally developed by educator Anna Gillingham in conjunction with Dr. Samuel Orton, a neuropsychiatrist who developed influential theories of brain organization in dyslexia and methods for remedying such deficits. Programs based on their work emphasize seeing, saying. and tracing letters while sounding out words, and analysis of the linguistic, rule-based patterns of our language. Their method is used in numerous clinics and educational settings concerned with remediation of dyslexic children and adults. The Orton-Gillingham/Project Read program used in this research study contains detailed protocols for each lesson sequence. (Greene V, Enfield ML. Project Read. Bloomington Public Schools. Bloomington. MN.)

3. Prior to initiation of this study, I developed the Repeated Oral Assisted Reading (ROAR) protocol--(1) teacher modelling a sentence (I read); (2) teacher and student reading the same sentence together while tracking each word (we read); and (3) student reading the sentence alone (you read)-- while consulting on a severely dyslexic high school student reading at third grade level despite years of special help. His gain of three grade levels in reading accuracy and significant fluency increase in nine months of daily 15-minute ROAR sessions with his LD teacher led me to hypothesize that this strategy would allow dysphonetic readers to circumvent still-deficient phonological processing skills while making significant gains in reading accuracy and fluency.

4. It has been my experience that normally-developing readers need to re-decode a new word only a couple of times before they recognize it on sight. This is in stark contrast to dysorthographic readers: One first grader decoded the word "cub" 24 out of 25 encounters in a story about bear cubs. Only once did he recognize it on sight.

5. It is important to note that while most students remained in ITA reading and writing protocols for at least an entire intervention cycle (9 months, 3-4 sessions per week), pre and post-tests consisted of traditional orthography texts, indicating that ITA reading and writing transfers to traditional word recognition and spelling without specific transition procedures.

A caveat to my opinion that ITA students do not need a structured transition period to TO is that our intervention students are exposed to traditional orthography for the majority or entirety of their school days while receiving intervention services for only one hour. However, based on my teaching experiences, I hypothesize that most children whose introduction to reading is with ITA only will self-transition because:

1. Emerging readers crack the code of reading English by first writing words by sound (e.g. sed, wuz, and uv). Recognition of the orthographic representations of these words soon follows, and I do not believe they need to unlearn sound spellings; in fact, these sound spellings are effortlessly hooked to the orthographic representations and subconsciously allow instant recognition of words. This connectionist theory of dual representation of every word we know how to read and spell -- an unconscious phonetic representation linked to the orthographic presentation-- explains, in my opinion, why we can instantly and correctly pronounce words with identical orthographic letter sequences, e.g., though, thorough, tough, bough, hiccough.

2. English orthography is ubiquitous in all children's environments via their exposure to cell phones, video games, day care, and internet. Therefore, I believe that children in ITA-only reading programs will begin to hook their ITA spellings to TO words in the same way that emerging readers in TO programs become proficient readers, by beginning with sound spellings that pave the way for phonological-orthographic pairings that are the hallmark of automaticity of word recognition.

3. English-speaking Ojibwe children who are immersed in Ojibwe literacy for four years before being exposed to English follow the same developmental pattern. At first, they write words using the phonetic Ojibwe spelling system. Soon, they recognize the English orthographic patterns.

6. I developed the Slash and Dash protocol as a dignified, age-appropriate way to help older students correct phonological deficits without resorting to use of phonics drills and phonetically-regular early readers, e.g,, The fat cat sat on the mat. The Slash and Dash protocol consists of the following steps:

1. Dictate a word (gravitation)

2. Student counts syllables and indicates syllable boundaries with slashes on the whiteboard
_____/_____/_____ /_____/

3. Student makes dash for each sound heard in each syllable
_ _ _ / _ _ / _ _ _/_ _ _/

4. Student writes ITA symbol for each sound, syllable by syllable
g r a / v u / t æ / ʃh u n

5. Student types phonetic rendition in Franklin spell checker, listens for word, and writes the dictionary spelling of the word over the ITA version
gra vi ta tion
g r a / v u / t æ / ʃh u n

6. Student analyzes each phonetic syllable compared to traditional spelling.

7. Student writes the word in one or more sentences in his/her writing notebook or on flashcard.

REFERENCES

Anderson, J. (2017). The use of the initial teaching alphabet (ITA) for acquisition of English phonology, vocabulary, grammar, reading,, and writing by speakers of other languages. *Proceedings of the International Conference on Education and New Learning Technologies, (17).* Barcelona, Spain.

Boder E. (1971). Developmental dyslexia: Prevailing diagnostic concepts and a new diagnostic approach. In H. Myklebust, (Ed), *Progress in learning disabilities* (pp. 293-231). Grune and Stratton.

Boder E. (1973), Developmental dyslexia: A diagnostic approach based on three atypical reading-spelling patterns. *Developmental Medicine and Child Neurology, 15,* 663-87.

Boder, E., & Flynn, J. (1991). Clinical and electrophysiological correlates of dysphonetic and dyseidetic dyslexia. In J.F. Stein (Ed.), *Vision and Visual Dyslexia*, (Vol 13, pp. 121-131). The MacMillan Press, Ltd.

Eaddy, L. (2014). *The effects of peer repeated reading fluency intervention (ROAR) on attitudes toward reading and reading proficiency in fourth grade African AmericansStudents.* [Unpublished master's thesis]. Saint Mary's University of Minnesota. Minneapolis, MN.

Ellman, L. (2017). *The effect of Repeated Oral Assisted Reading (ROAR) on the accuracy and fluency of struggling third-grade readers when tutored by volunteers.* [Unpublished master's thesis]. Saint Mary's University of Minnesota. Minneapolis, MN.

Debner, B. (2014). *Prescriptive spelling approach for students with learning disabilities.* [Unpublished master's thesis]. Saint Mary's University of Minnesota, Minneapolis, MN.

Debner, B., & Anderson, J. (2017). Correction of phonological deficits in students with dyslexia through the use of a phonemic alphabet, the initial teaching alphabet (ITA) *Proceedings of the International Conference on Education and New Learning Technologies, (17).* Barcelona, Spain.

Englemann, S., & Bruner, E. (1984). *Distar reading.* Science Research Associates.

Flynn, J. (2000). *The use of the Initial Teaching Alphabet for remediation of dyslexia.* [Occasional paper]. New York: Initial Teaching Alphabet Foundation.

Flynn J, Deering W. (1989a). Subtypes of dyslexia: Investigation of Boder's system using quantitative neurophysiology. *Developmental Medicine and Child Neurology, 31*, 215-33.

Flynn J, & Deering W. (1989b). Topographic brain mapping and evaluation of dyslexic children. *Psychiatry Research, 1*(29), 407-408.

Flynn, J., & Deering, W. (1993). Eavesdropping on the brain: The Gundersen Medical Foundation dyslexia studies. *The Gundersen Medical Journal, 1*(2), 49-54.

Flynn, J., Deering W., Goldstein, M., & Rahbar, M. (1992). Electrophysiological correlates of dyslexic subtypes. *Journal of Learning Disabilities, 25,* 133-141.

Flynn, J. & Rahbar, M. (2021). *Phonological and orthographic reading disabilities: Response to treatments using the Initial Teaching Alphabet (ITA) and Repeated Oral Assisted Reading (ROAR).* [Manuscript submitted for publication]. Saint Mary's University of Minnesota, Winona, MN and Aga Kahn University, Karachi, Pakistan.

Greene, V., & Enfield, M. (1984). *Project Read.* [Manual]. Bloomington Public Schools, Bloomington, MN.

Lyon, G.R., & Flynn, J. (1991). Educational validation studies with subtypes of learning disabled readers. In B.P. Rourke (Ed.), *Neuropsychological Validation of Learning Disability Subtypes.* pp. 223-242. Guilford Press.

Lyon, G.R., Moats, L., & Flynn, J. (1988). From assessment to treatment: Linkage to interventions with children. In M. Tramontana and S. Hooper (Eds.), *Assessment Issues in Child Neuropsychology,* pp. 113-142. Plenum Press.

Meyer, M., & Felton, R. (1999). Repeated reading to enhance fluency: Old approaches and new directions. *Annals of Dyslexia, 49*, 283-306.

Moore, S. (2017). *Using a phonetic alphabet, the initial teaching alphabet (ITA) to remediate reading disabilities in first-year college students*. [Poster presentation]. Proceedings *of International Conference on Education and New Learning Technologies, (17).* Barcelona, Spain.

Rogers, B. (2012). *The effects of Repeated Oral Assisted Reading (ROAR) on specific learning disabilities students' reading fluency and accuracy rates.* [Unpublished master's thesis]. Saint Mary's University of Minnesota. Minneapolis, MN.

Seifert, J. (2013). *The effects on fluency growth for fourth grade students identified as below grade level readers using ROAR.* [Unpublished master's thesis]. Saint Mary's University of Minnesota, Minneapolis, MN.

Tanyer, H., & Mazurkeiwicz, A. (1963). *Early-to-read i/t/a/ program-revised.* Initial Teaching Alphabet Publications.

Van Handel, E. (2013). *Improving phonemic awareness and Good Phonetic Equivalents (GFEs) in intermediate students through spelling by sound*. [Unpublished master's thesis]. Saint Mary's University of Minnesota, Minneapolis, MN.