CORRECTION OF PHONOLOGICAL DEFICITS IN STUDENTS WITH DYSLEXIA THROUGH THE USE OF A PHONEMIC ALPHABET, (I.T.A.)

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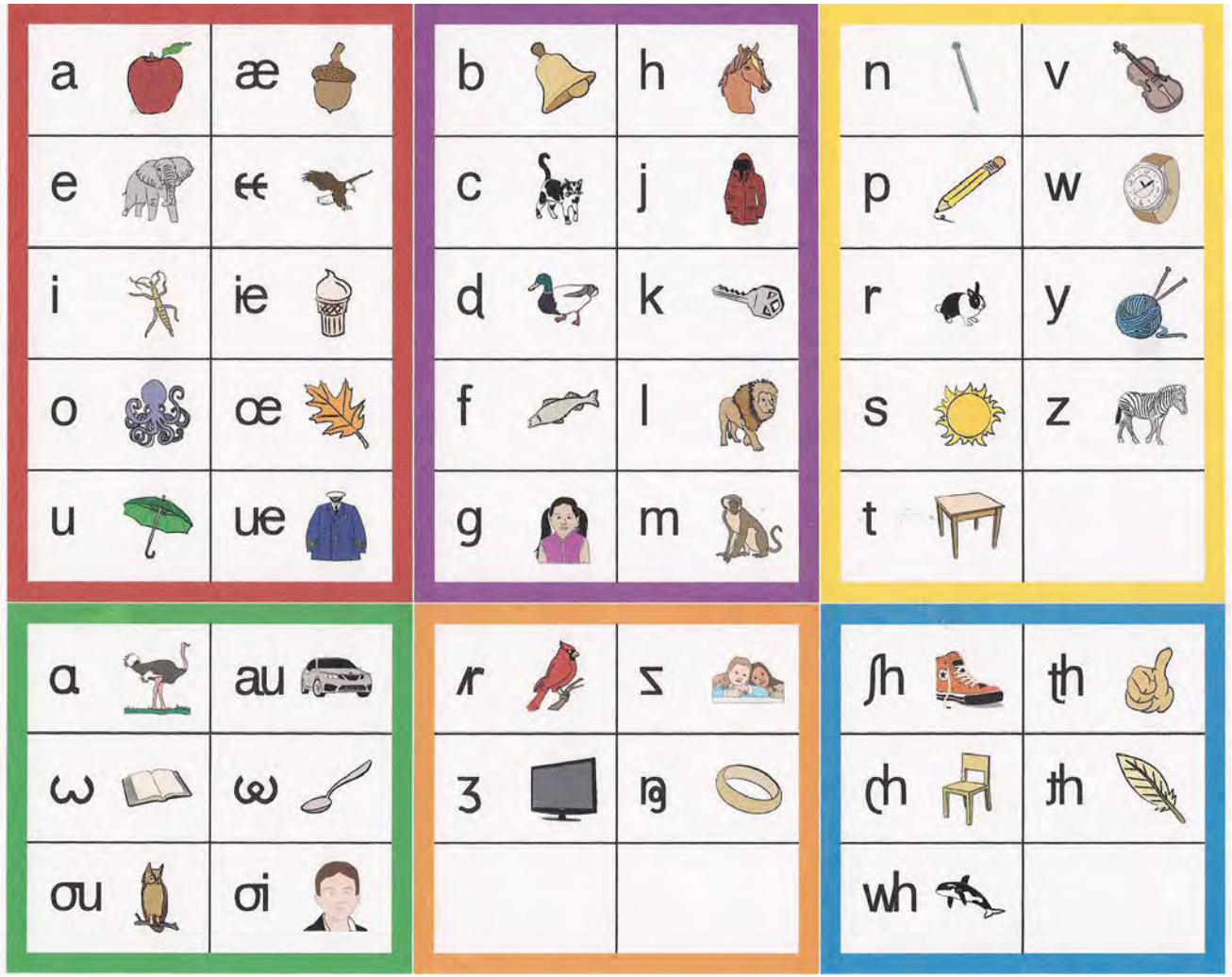
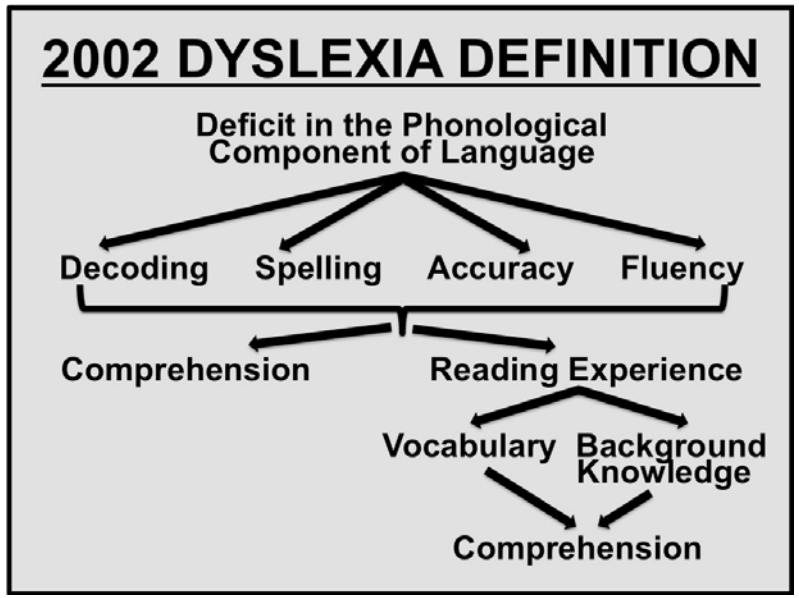
INITIAL TEACHING ALPHABET (I.T.A.)



DYSLEXIA FACTS

Incidence of Dyslexia

- 2x more prevalent in English than in transparent languages (German, Italian)
- Caused by Phonological Deficit

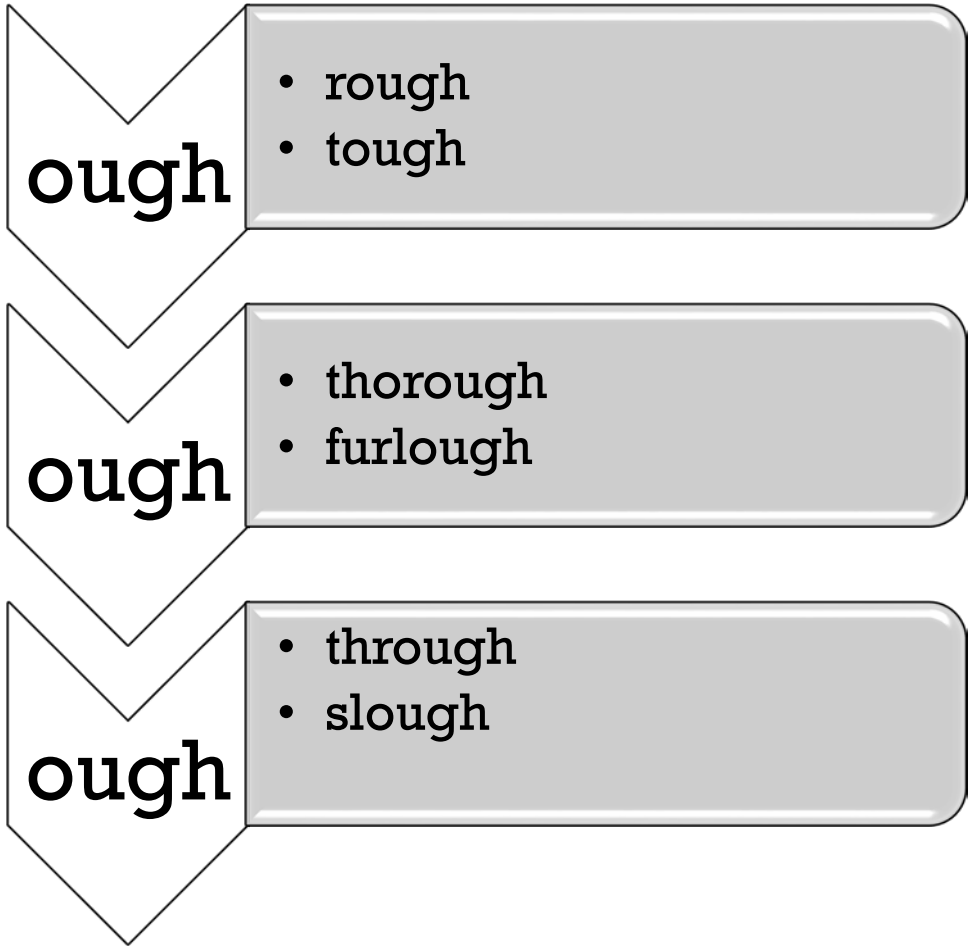


Phonological Awareness

- Understanding that spoken language can be analyzed by syllables and sounds
- Examples:
  - How many syllables do you hear in ____?
  - How many sounds do you hear in_____?
  - Say "meat." Say it again, but don't say /m/

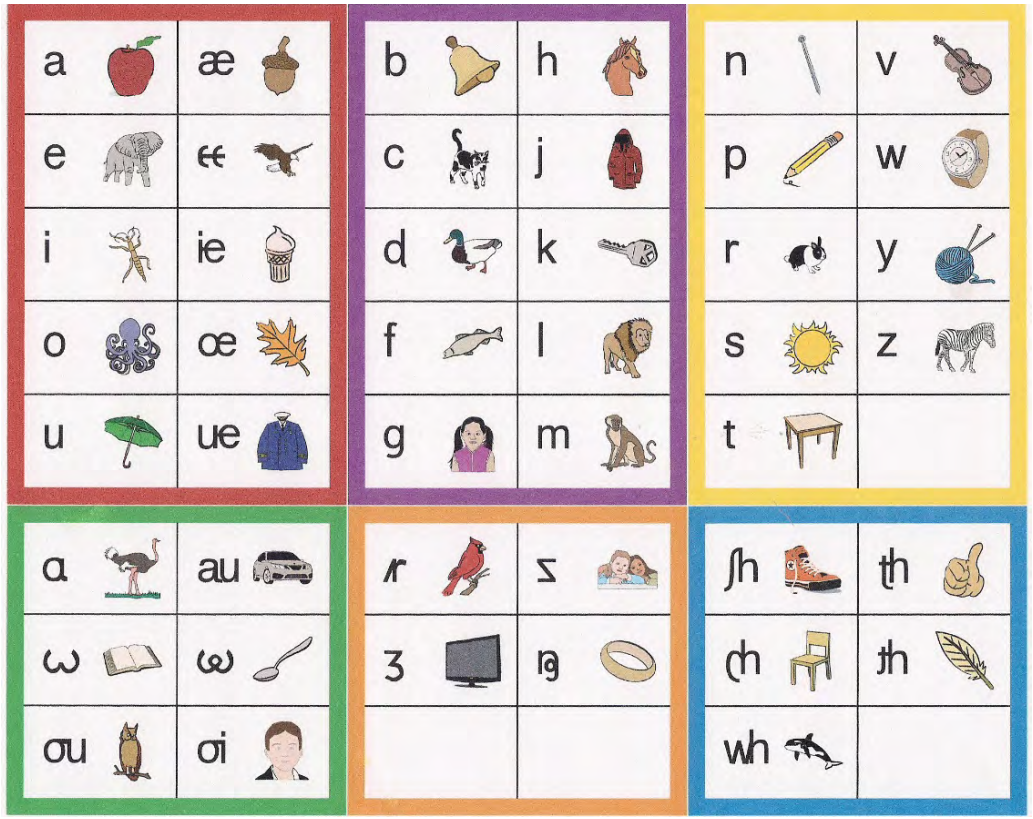
THE PROBLEM: ENGLISH ORTHOGRAPHY

- 44 sounds but only 26 letters
- Sounds can be written >1,100 ways
- Same letter sequences = different sounds



WHY I.T.A. NEEDED FOR DYSLEXIC READERS

- *How normally-developing readers learn*
  - *Write—sed wuz uv*
  - *See—said was of*
- *Good readers have both an orthographic and phonetic representation of words*
  - *tough = tuf*
  - *furlough = fɚlœ*
  - *through = thrɷ*
- *Dyslexic readers missing this connection*



HOW I.T.A. IS USED WITH DYSLEXIC READERS

Writing

ie liek

ie liek hœrsiz. ie liek tω reɛd. tωdæ ie waunt jim clas. socɾ iz mie fævrit spœrt. ie liek cats beɛcauz ðæ ɑr sauft and flufɛɛ. ie liek maps beɛcauz it iz fun tω lɾn nω θiŋgz.

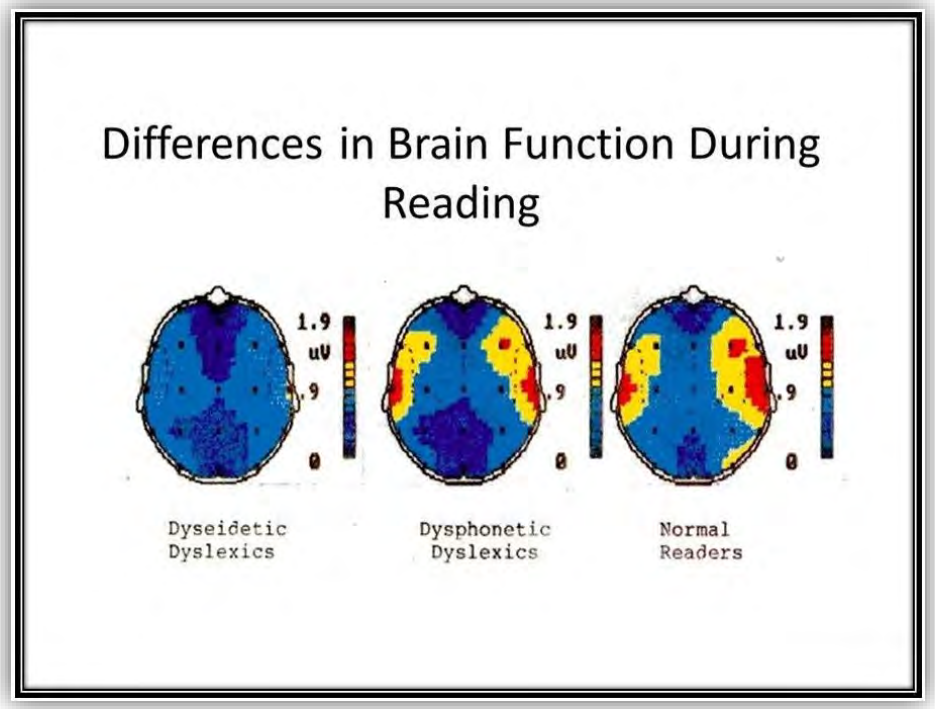
Reading

Snowmanikul

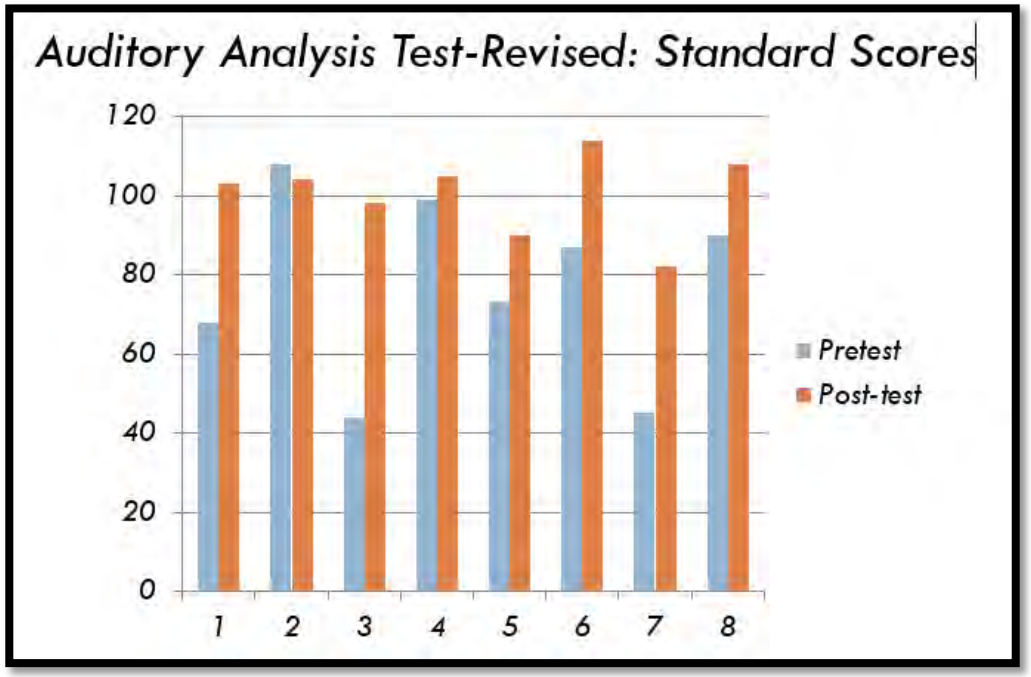
wuns upon u tiem, ðær wuz u snœman næmd Snowmanikul (Snowman + ikul). Snowmanikul had ɑ jolɛɛ red nœz with tω pufɛɛ butun iez. Snowmanikul iz u værɛɛ smaul snœman. hɛɛ wœr u yelœ hat with butunz on it, ðat sed, "wundɾful." hɛɛ had tω cɾvd armz, with tω red flufɛɛ mitenz on ðu endz. Snowmanikul wuz ɑ verɛɛ jenɾus snœman.

CAN DYSLEXIA BE REMEDIATED?

Flynn & colleagues, 1989-1993



Debner & Flynn Anderson, 2017



BRAIN MAPPING STUDY: DO SUBTYPES OF DYSLEXIA EXIST?

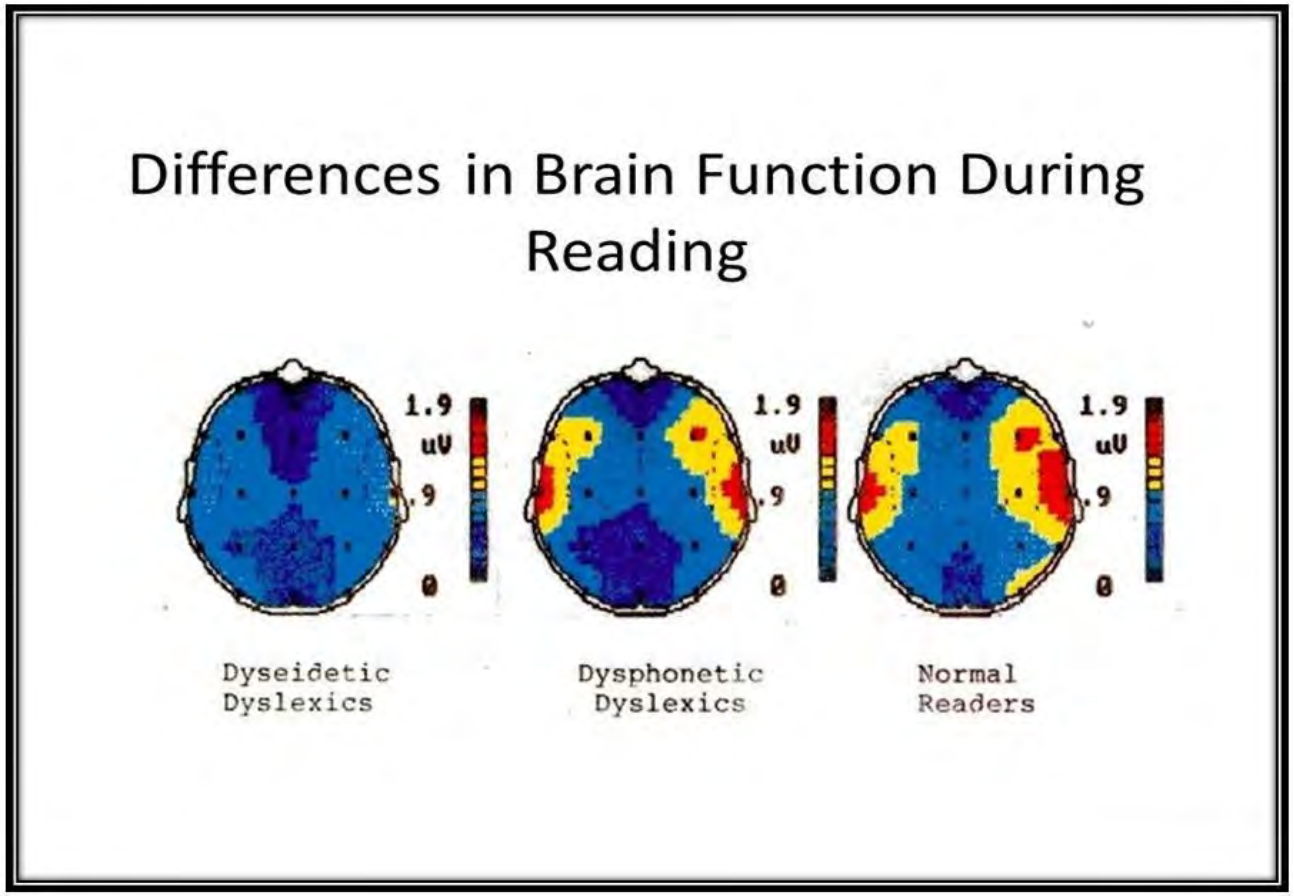
Dysphonetic

- Guess from context or picture cues
- Read rapidly and inaccurately
- Substitute words that start with the same letter (boat 4 bait)
- Spelling errors are nonphonetic
  - kihin 4 kitchen
  - instot 4 institute
  - eqimen 4 equipment

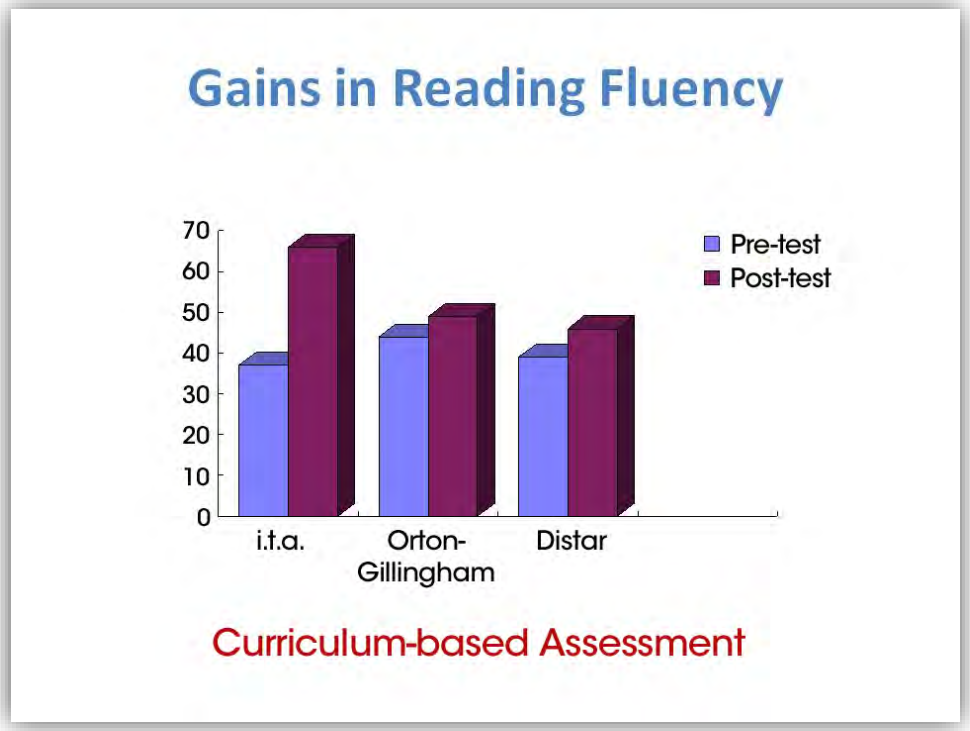
Dysorthographic (Dyseidetic)

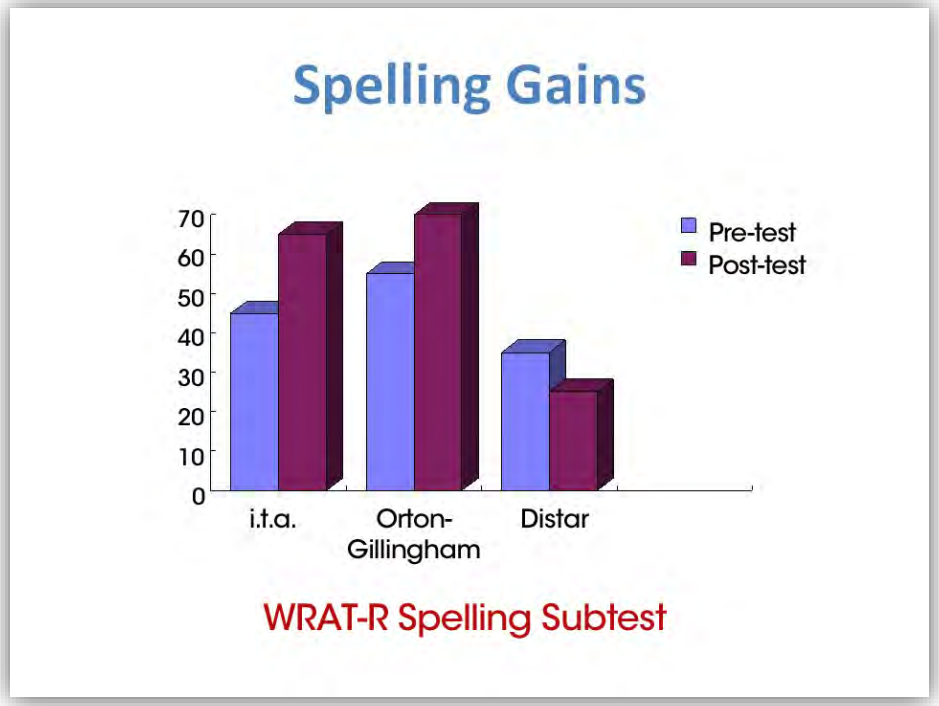
- Sound out the same word over and over
- Cannot recognize words on sight
- Read very slowly
- Generally have difficulty comprehending longer texts
- Spell phonetically
  - woch 4 watch
  - onerubul 4 honorable
  - fotograf 4 photograph

NEUROPHYSIOLOGICAL EVIDENCE FOR SUBTYPES OF DYSLEXIA

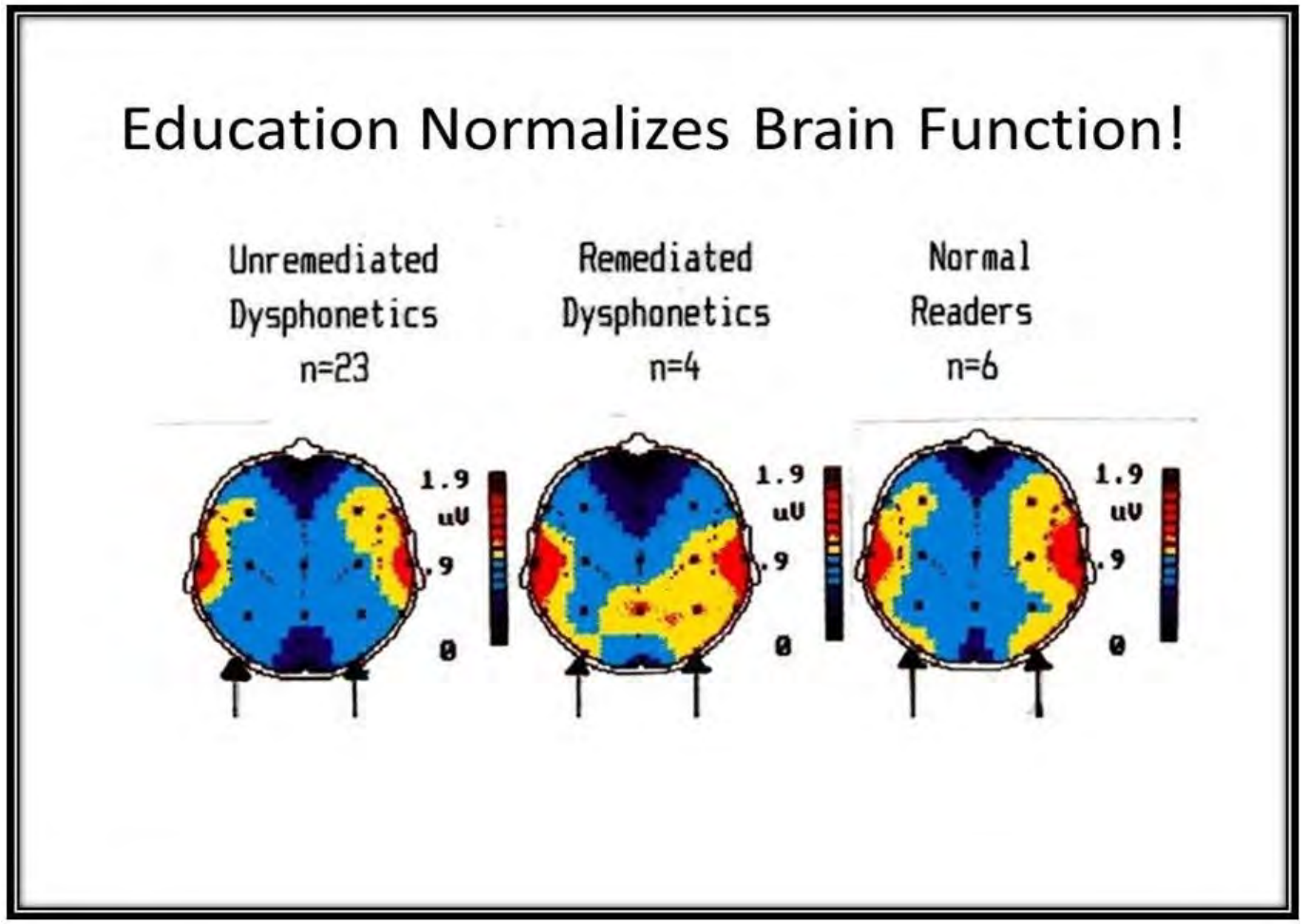


ACADEMIC GAINS OF I.T.A. INTERVENTION





NORMALIZATION EFFECT OF INTERVENTION



WHAT IS THE MECHANISM FOR NORMALIZATION? HOW DOES I.T.A. WORK?

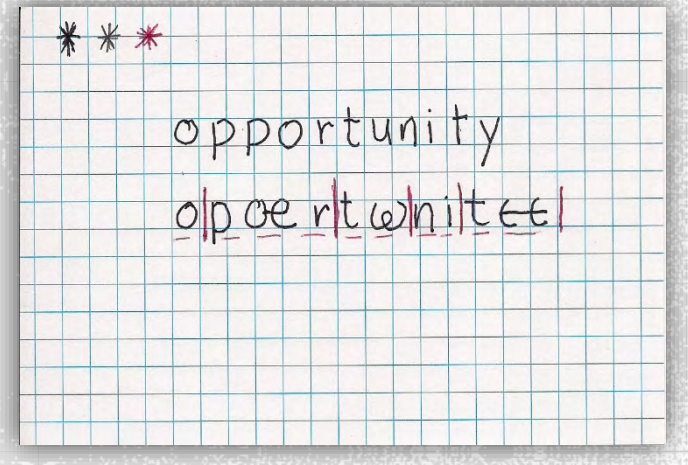
Debner Phonological Intervention Study
"Slash and Dash"

Slash and Dash

- *Tutor dictates multisyllabic word (pusillanimous)*
- *Student*
  - *Slashes each syllable* / / / / /
  - *Dashes each sound in each syllable* _ _ / _ _ / _ _ / _ _ / _ _ _ /
  - *Writes i.t.a. symbol for each sound* p ue / s u / l a / n u / m u s /
  - *Finds word in a dictionary* pu sil la ni mous

https://www.youtube.com/watch?v=Pz3xbMB0wWA&t=1s

SPELLING MULTISYLLABIC WORDS WITH "SLASH AND DASH"



RESEARCH DESIGN FOR "SLASH AND DASH" STUDY

Methodology

- Single-subject design
- Sample:
  - 8 Sp. Ed. Students-4th-6th grade
- Procedure:
  - Intervention over 30 school days
  - Slash and Dash 4 words daily
  - Each week: test transfer of intervention-GFE

Instrumentation

- Pre and Post-Tests
  - Auditory Analysis Test-Revised
  - WRAT 4 Spelling Test
  - Multisyllabic 6th Grade Curriculum words

RESULTS: WIDE RANGE ACHIEVEMENT TEST

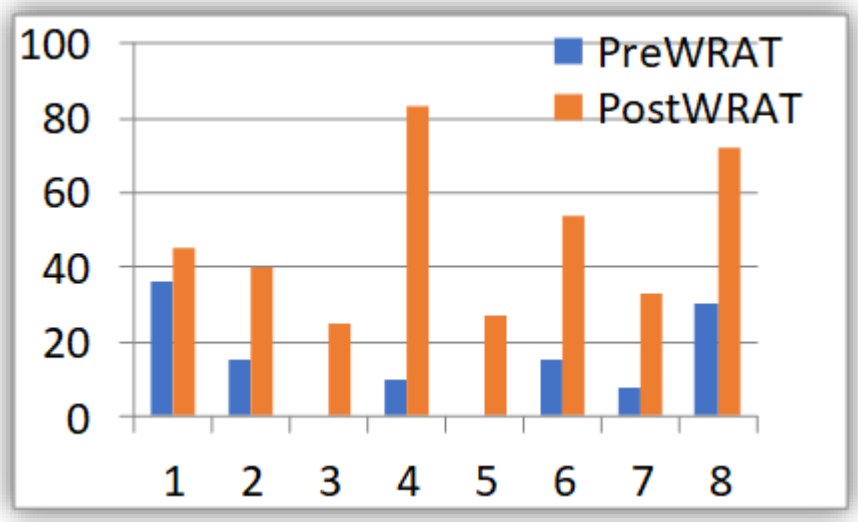
Paired-Sample T-Test

GOOD PHONETIC EQUIVALENTS- WRAT			
	Mean	Std.Deviation	Sig.
Pre-WRAT	14	13	0.002
Post-WRAT	47	21	

Examples:

institute-instatute
explain-explane
kitchen-kitchin OR cichin

Percent of words written as GFEs



RESULTS: MULTISYLLABIC WORDS TEST

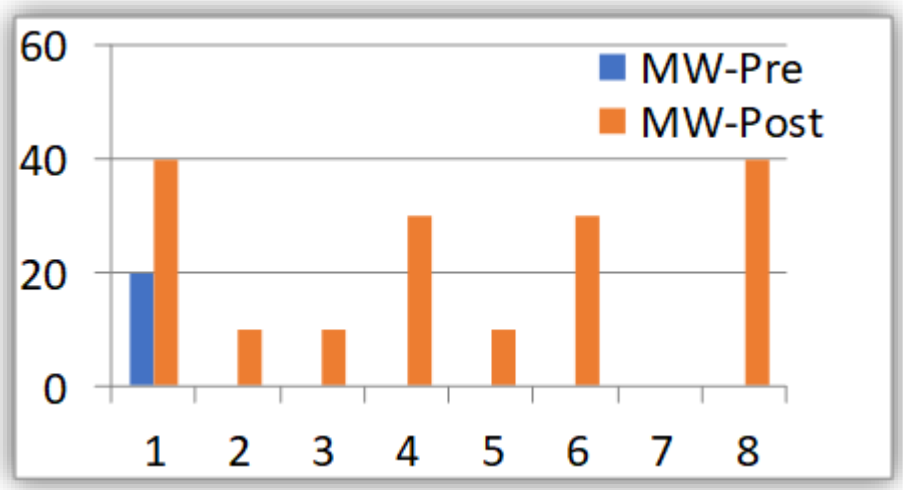
Paired-Sample T-Test

Multisyllabic Words List of 10 Words Scored for GFEs			
	Mean	Std.Deviatation	Sig.
Pre-MW	3	7	
Post-MW	21	16	0.006

Examples:

insignificant –insegnifegent
unstructured-unstructshured
respiration-resperation

Percent of words written as GFEs



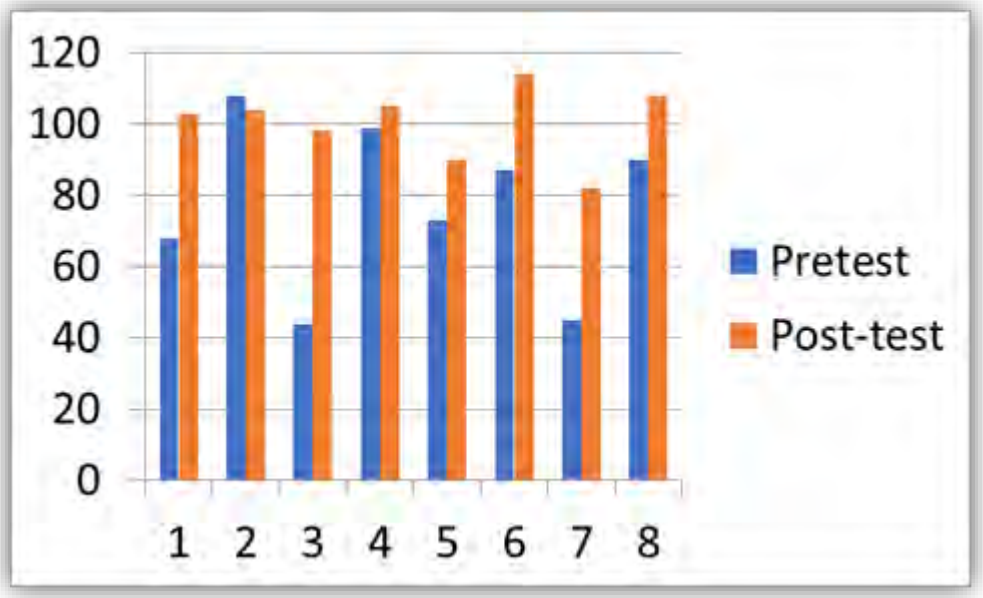
RESULTS: AUDITORY ANALYSIS TEST

Paired-sample T-Test

Auditory Analysis Test-Revised Standard Scores			
	Mean	Std.Deviation	Sig.
Pre-AATR	81	21.5	
Post- AATR	103	7.6	0.02

"Say___"	"Don't Say__"	Correct Response
turkey	tur	key
create	/e/long	crate
location	ca	lotion
carpenter	pen	carter

Standard scores on AAT-R



CONCLUSIONS

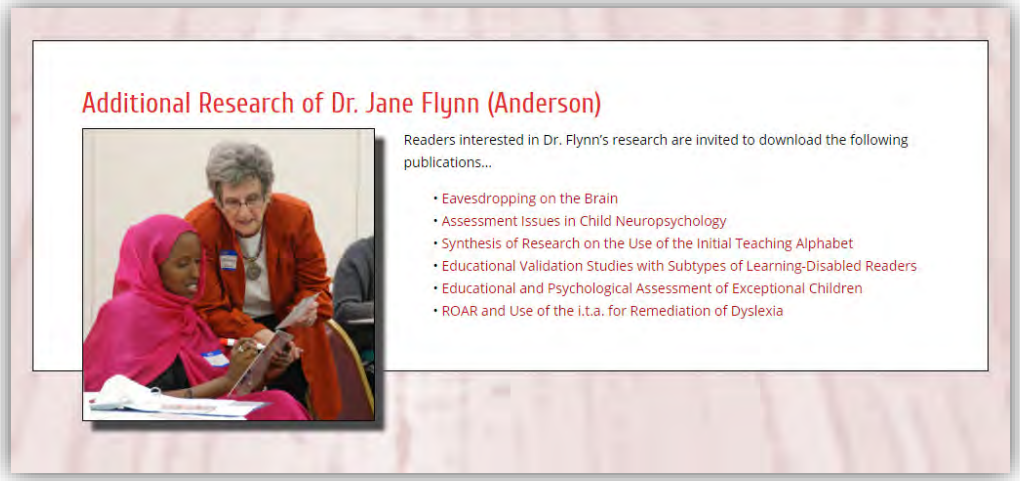
1. Dyslexia CAN be remediated

"I wanted to write to you to say thank you for all the work you have done to help children learn to read. I don't know who I would be today without i.t.a.. Not only do I love to read for enjoyment, but I have been able to get a great education and help others."

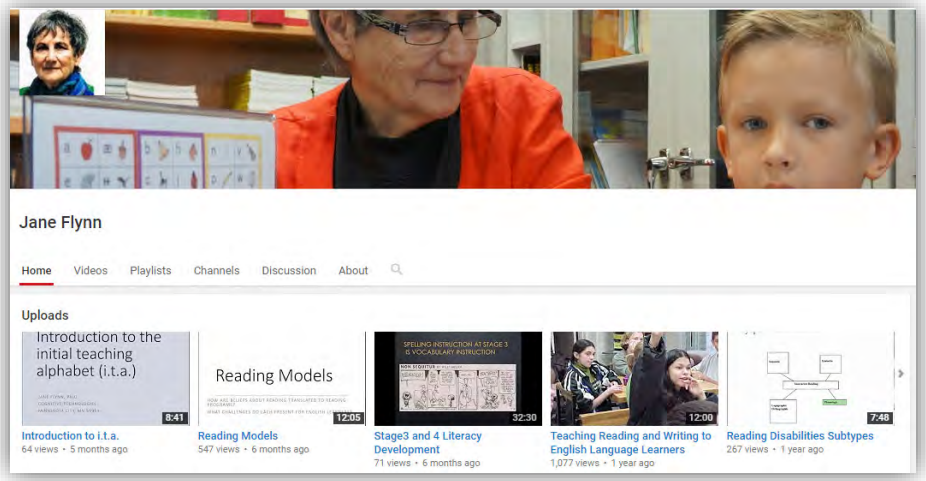
~ Jessica Anderson, MSW
University of MN

2. Remediation normalizes brain function

RESOURCES FOR MORE INFORMATION



- http://itaprogramwinonasmu.org/



https://www.youtube.com/user/ReadingDocFlynn