

# **DYSLEXIA AND OTHER READING DISABILITIES:**

## **AN OVERVIEW OF SCREENING, ASSESSMENT, INTERVENTION, AND ASSISTIVE TECHNOLOGY**

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# UNDERSTANDING DYSLEXIA: THE DEFINITION AND A CASE STUDY

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# MEET TIM - A GRADE 2 STUDENT WITH DYSLEXIA



# WHAT DOES DYSLEXIA LOOK LIKE IN A CHILD'S READING PERFORMANCE

- Substantial and persistent delay in acquiring reading and spelling skills
- Slow and/or inaccurate word identification and/or word spelling in isolation or context
- Secondary problems in reading comprehension





## WHAT DOES DYSLEXIA SOUND LIKE?

- Let's listen to a child with dyslexia read
- Note how slowly he reads compared to other kids his age
- Note that he “stumbles” from time to time as he reads – having to repeat some parts of the word before he gets it right; sometimes never getting it right



# DEFINITION OF DYSLEXIA

Specific learning disability

Neurobiological in origin

Inaccurate or non-fluent word recognition

Deficit in spelling and decoding abilities

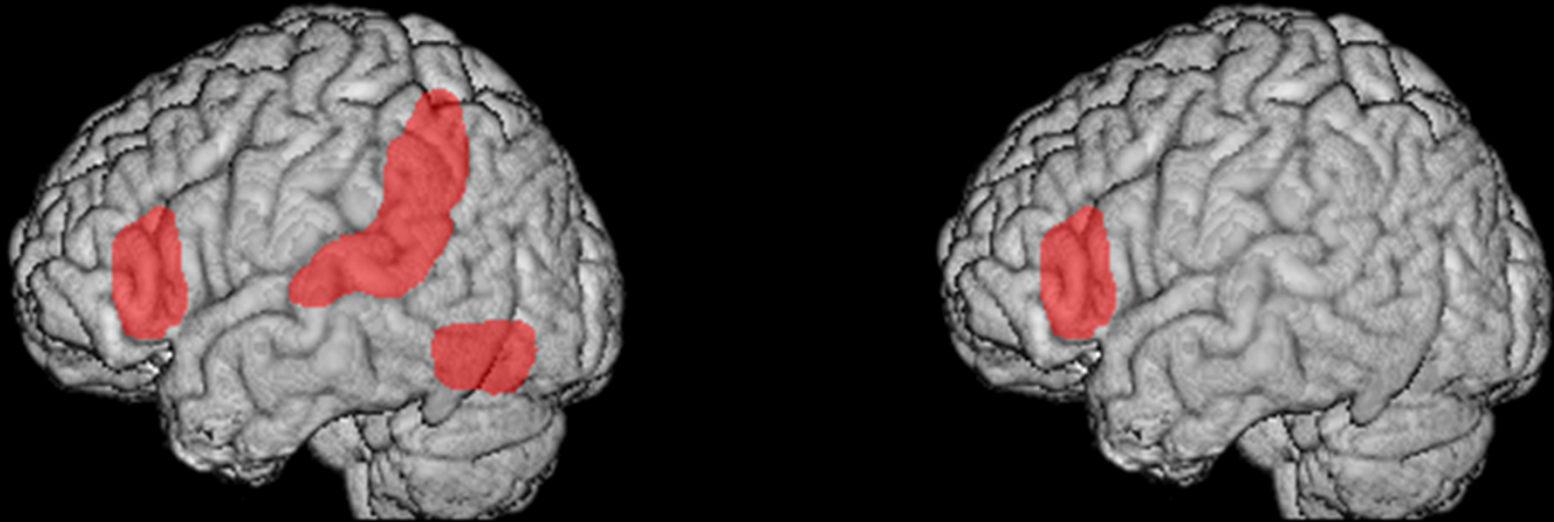
Often unexpected

Deficit in phonological component

Secondary consequences



# NEURAL SIGNATURE OF DYSLEXIA



# DIAGNOSIS OF DYSLEXIA : THREE MODELS

Ability-achievement discrepancy

Failure to Respond to Intervention

Pattern of strengths and weaknesses



# DYSLEXIA IS NOT

Difficulty with vision or hearing

Seeing things backwards

Attributable to limited intelligence

Due to low motivation or limited effort

Poor teaching

A rare disorder

A disorder which can be outgrown





# CHARACTERISTICS OF DYSLEXIA

Late learning to talk, slow to learn new words, trouble producing speech sounds

Difficulty learning letter names and sounds

Poor phonemic awareness

Poor spelling

Difficulty reading and spelling “sight” words



## CHARACTERISTICS (CON'T)

Inaccurate and slow oral reading

Poor reading comprehension problem vs. listening comprehension

Poor handwriting and/or written expression

Avoidance of reading and writing

Overreliance on context and guessing



# COGNITIVE CORRELATES UNDERLYING READING

Phonological processing

Orthographic processing

Rapid automatized naming (RAN)

Processing speed

Working memory

Attention

Executive Function



# PHONOLOGICAL PROCESSING PROBLEMS

Delayed speech, early articulation errors

Confusion of similar sounds: b/p, f/v

Poor phonemic awareness:

- Rhyming
- Segmenting
- Identifying initial, medial, final sound



# ORTHOGRAPHIC PROCESSING PROBLEMS

Reverses letters and numbers

Difficulty with copying

Difficulty learning how to form letters

Trouble remembering sight words

Confuses similar looking letters and words

Violates rules of English spelling





# PROBLEMS IN RAPID NAMING

Difficulty sustaining attention to the process of naming/ sounding the symbols

Difficulty retrieving verbal labels rapidly

Difficulty articulating words rapidly



## PROCESSING SPEED PROBLEMS

Difficulties in serial scanning of print

Inefficient visual tracking



## WORKING MEMORY PROBLEMS

Limited ability to hold information in memory and process it.



## CO-MORBIDITY WITH ADHD

Between 25 and 40% of students with ADHD have reading problems

15–35% of individuals with RD also meet criteria for ADHD



# TIM: RELEVANT HISTORY

## Family history:

- Dad had difficulty learning to read

## Medical history:

- Frequent ear infections

## Pre-School history:

- Delayed speech
- Articulation errors

## K-1 history:

- Difficulty learning letter names and sounds for reading and spelling
- Difficulty blending sounds in to words
- Difficulty rhyming, identifying initial sound
- No difficulty in math
- Motivated to learn





# TIM: CURRENT PROFILE IN GRADE 2

Articulation errors: e.g.,  
aminal for animal

Frequently inaccurate in  
word recognition of both  
phonetically regular  
words and sight words

Reads more slowly than  
classmates

Often guesses at  
multisyllabic words

Frequent spelling errors  
on both phonetically  
regular and sight words

Has particular difficulty  
reading and spelling  
demon phonograms,  
e.g., au, ou

Doesn't like reading

Responds more readily  
and accurately to  
questions on  
stories/information read  
to him than material he  
reads himself

Oral responses are more  
complex than written  
responses

Likes and does well in  
math



# RESULTS OF INFORMAL ASSESSMENT OF READING

Phonogram inventory for reading and spelling shows many gaps in his learning

Fluency below average rate for his grade

Listening comprehension noticeably better than reading comprehension



## TIM: COGNITIVE CORRELATES

Processing speed is slow for all tasks requiring scanning a line of print, even math tasks, e.g., recognition of patterns of shapes or numbers

Working memory is poor as observed in difficulty following oral directions



# INTERVENTION

Tim receives structured literacy instruction in a small group in his classroom and improves somewhat

Seeking better progress, intensity of instruction is increased by reducing group size, increasing number of “phonics” lessons/week

Tim is given accommodations for reading and spelling

Assistive Technology is introduced

Tim’s frustration in reading, spelling, and writing is reduced



## GRADE 4 HAPPENS

Transition to “reading to learn” is expected through use of more expository texts:

- Vocabulary harder to determine from context
- Denser text for reading, fewer pictures

Longer and more demanding writing assignments





# MIDDLE SCHOOL

Slow rate of reading remains

Cannot work fast enough to cope as volume of work increases

Overwhelmed by multiple assignments

Lack of effective strategies for studying

Residual problems in spelling remain and written work remains very difficult



# HIGH SCHOOL: THE BAR IS RAISED AGAIN

Slow rate of reading remains

Cannot work fast enough to cope as volume of work increases

Overwhelmed by multiple assignments

Lack of effective strategies for studying

Residual problems in spelling remain and written work remains very difficult



# TIM: A SUCCESS STORY

Graduates from high school with a 3.2 GPA

Is well liked by peers and teachers

Excels in baseball and basketball

Recruited by colleges; selects a college with a support program

Uses AT and accommodations throughout college and grad school; continues to be a hard worker

Is comfortable with his dyslexia and proud of his level of achievement



# REFLECTION



# SCREENING, ASSESSMENT, AND ACCOMMODATIONS

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# EARLY INTERVENTION

“The rich get richer and the poor get poorer.”  
The Matthew Effect (Stannovich, K. 1986)  
We can’t afford “not to” do early intervention.

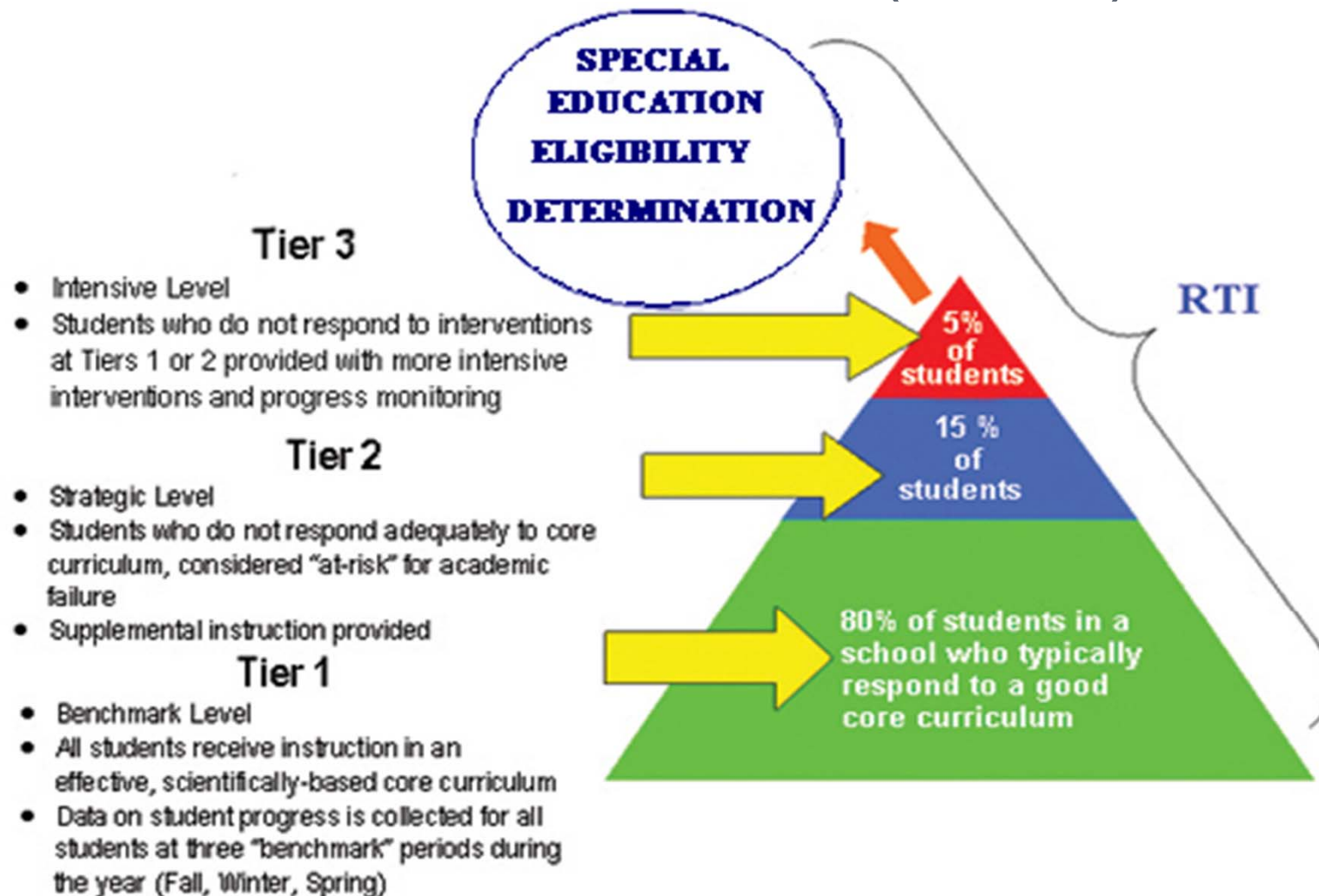
“75 % of children who were poor readers in the 3rd grade remained poor readers in the 9th grade and could not read well when they became adults.”

“The best solution to the problem of reading failure is to allocate resources for early identification and prevention.”

- Joseph Torgesen in Catch Them Before They Fall.
- <http://www.aft.org/sites/default/files/periodicals/torgesen.pdf>



# RESPONSE TO INTERVENTION (“RTI”) MULTI-TIERED SYSTEM (“MTS”)



# RTI MTS

Designed to improve outcomes for all students

Prevention-based Framework

Includes 6 components

- data-based problem solving and decision making;
- a layered continuum of supports;
- research-based instruction, intervention, and assessment practices;
- universal screening and progress monitoring;
- shared leadership; and
- family, school, and community partnering.





# 4 TYPES OF ASSESSMENTS

## Screening Assessments:

Which of our students might need some extra assistance in order to be successful academically?

## Diagnostic Assessments:

What are this student's academic strengths and instructional needs?

## Benchmark/Progress Monitoring Assessments:

Is learning happening?

## Outcome Assessments:

Did our students make progress toward meeting the standards?



# UNIVERSAL SCREENING

- All screenings should be based on Curriculum Based Measurement (“CBM”) – standardized -30 years of research by Stan Deno and Mark Shinn.
- Standardized procedures for administering and scoring.
- Screening - typically administered 3-4 times a year to ALL students.
- CBM is efficient, cost-effective, brief.



# CBM MEASURES

At the kindergarten level include: Phonemic Awareness (PA) and Rapid Automatic Naming (RAN).

- First Sound Fluency (FSF)
- Letter Naming Fluency (LNF)
- Letter-Sound Correspondence
- Phoneme Segmentation Fluency (PSF)
- Nonsense Word Fluency (NWF)
- Some screeners also include Picture Naming Vocabulary, Spelling, Blending of onset-rimes.



# WHAT DOES THIS LOOK LIKE?

a y m p n e v b f c  
z r u g c b e l k p  
g k j y n d p t h f  
j u b g m a t e z f  
z b i u n e g m f r  
k s z y d o g p u h  
w i p j o g n b a k  
m j c r g i h v a p  
k u v o a c t h n j  
u s t g j e n v l o

noj	vez	ruz	biv	yep
nof	lal	jon	duv	luk
sij	yuc	mod	lef	hus
mij	vis	kuj	jep	miz
wip	pez	fik	vug	az
non	kat	jik	pas	joz
nik	ret	od	lic	dop
kos	muv	jid	sus	tos
zuc	laf	het	kuc	yub
woj	fos	og	rev	wij
wef	jof	yug	iz	fav
muz	nav	mac	vuz	bik
tud	veb	pep	wal	sid
suz	mav	hij	yob	nov
vom	yec	ic	hej	hon



# FIRST GRADE- STILL PA AND RAN

- Letter Naming Fluency (LNF)
- Phoneme Segmentation Fluency (PSF)
- Real Word Reading- out of context
- Nonsense Word Fluency (NWF)
- Letter Sound Fluency (LSF)
- Oral Reading Fluency (ORF)
  
- Some screeners also include Picture Naming Vocabulary, Spelling by Sound, Retell Fluency, and Word Use.



# ORF LOOKS LIKE

It was raining outside, and there was nothing for Norman to do.	12
"I have the most boring life," he moaned, as he plopped down on the couch. Just	28
as he switched on the television, the power went out. Watching a blank television	42
was not something Norman wanted to do. He looked around at the four dismal walls	57
that kept him out of the rain.	64
"Now what am I going to do?"	71
"You could tidy up your room," his mom suggested, "or organize your closet.	84
Your closet is a disaster, Norman. I'm actually frightened of what you might find in	99
there. You haven't cleaned it in a decade."	107
There was nothing Norman could say after his mom had made up her mind. He	122
was going to have to clean out his closet.	131
The only problem was that Norman couldn't even open his closet door.	143



## GRADE 2 AND GRADE 3

- Real Word Reading
- Nonsense Word Fluency (NWF)
- Oral reading fluency (ORF)
- Reading Maze
- Spelling

“Oral reading fluency explains reading comprehension test results from mid-first to end of third grade. By fifth grade, verbal reasoning, vocabulary and background knowledge become more and more important to overall reading achievement.”  
(Moats & Hancock, 2004)





# When selecting a screening tool focus on:

## Predictive Validity

- “If we used this screener to predict how every child will perform at some point in the future, how good would those predictions be?”

## Classification Accuracy

- “If we used this screener to divide our students into those considered at risk and those considered not to be at risk, how well would we do based on the outcome of their future performance?”

## Normative Scoring

- Developed on large samples of diverse subjects.
- Allow us to compare scores on multiple assessments to properly judge whether we have a consistent picture of performance, or whether some of the scores are aberrant and may need special consideration.
- Gives us better ability to track performance over time.



# INFORMAL MEASURES OF PHONOLOGICAL AWARENESS

## Word Discrimination

- same or different

## Rhyme Recognition

- 3 words which words rhyme.....cat, hat or sun

## Onset-Rimes

- (bat) b is the onset and -at is the rime

## Rhyme Production

- tell me a word that rhymes with tree

## Syllable Blending

- if I say cup.....cake fast, it would be...cupcake

## Syllable Segmentation

- compound words and syllables



# INFORMAL MEASURES (CON'T.)

## Syllable Deletion

- Compound Words and Syllables

## Phoneme Recognition

- tell me a word that starts like “cat”

## Phoneme Blending

- I’m going to say the sounds slowly and then say the word... /c/.../a/.../t/.....cat

## Phoneme Segmentation

- use blocks – push a block forward as you say each sound

## Phoneme Deletion

- -I'm going to say a word and leave off one sound. If I say “seat”, but don’t say /s/...it would be “eat”



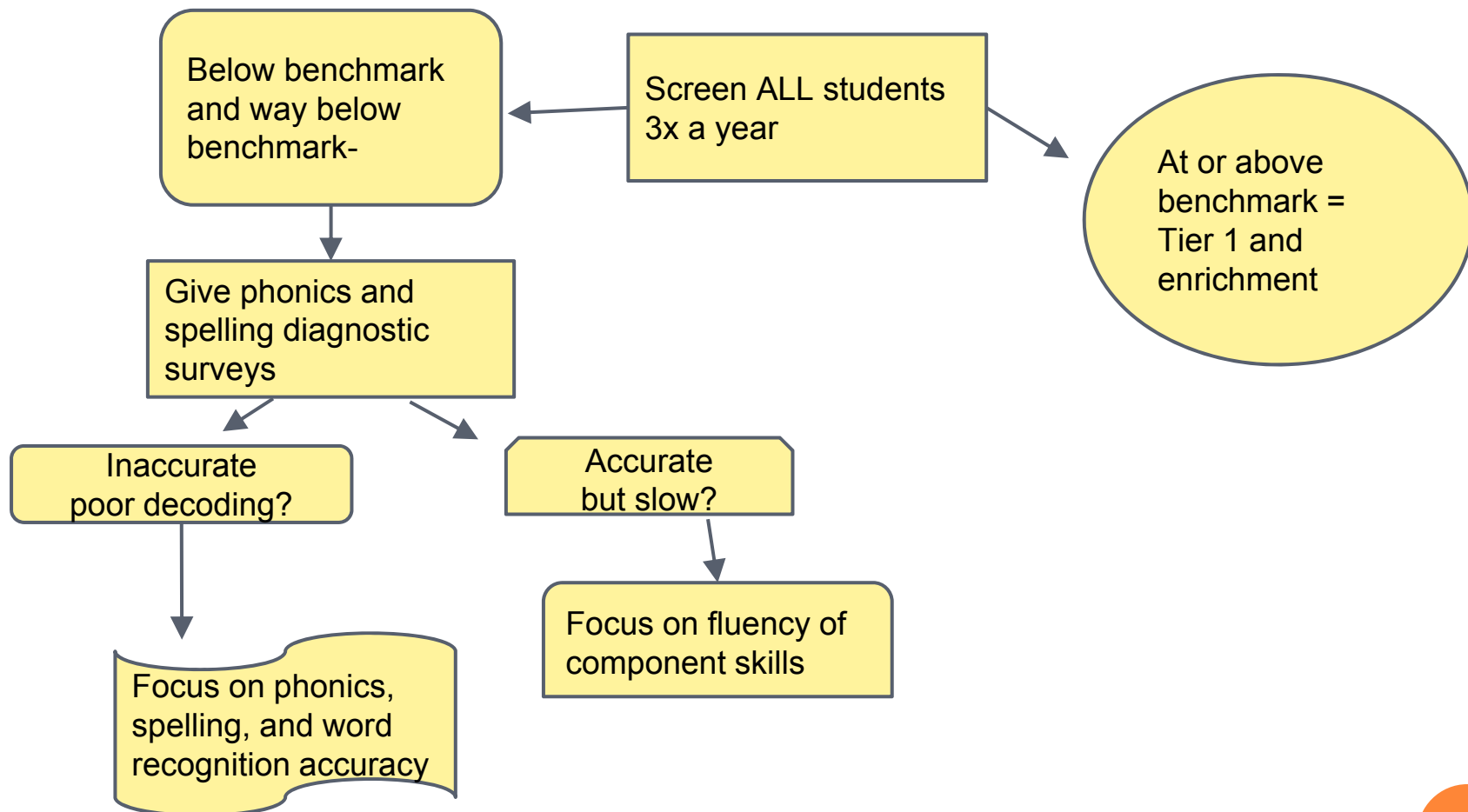
# INFORMAL MEASURES OF RAN

- Color Naming: Using four or five colors known by the child, present either a series of blocks or a color chart using those known colors arranged in random order. Repeat the series of random colors so there is a total of 50 items. Ask the child to name the colors as quickly as he can. The time it takes to complete the task can be recorded and compared to the performance of other children in the classroom.
- Do this also with Object Naming (5-10 objects) or Letter Naming (10-20 letters)

(Essentials of Dyslexia Assessment and Intervention (2012) Nancy Mather and Barbara J. Wendling)

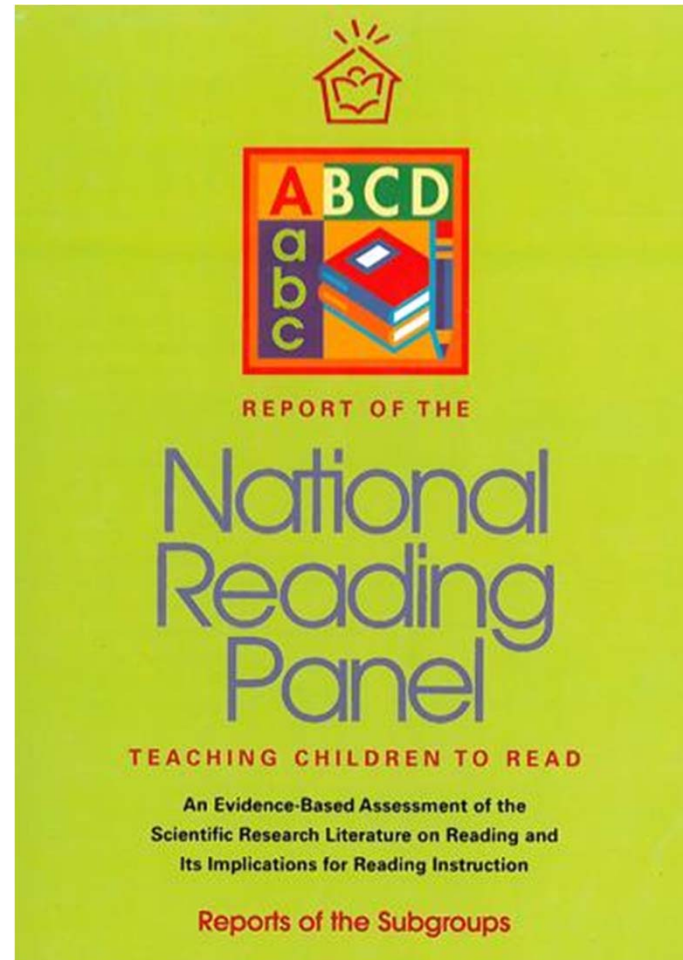


# DECISION MAKING MODEL



# COMPREHENSIVE ASSESSMENT BIG FIVE

- Phonemic Awareness
- Phonics
- Fluency
- Vocabulary
- Comprehension
- Writing
- Background Knowledge & Motivation



# PHONOLOGICAL AWARENESS AND RAPID NAMING

remove  
phonological  
segments from  
spoken words to  
form other words

synthesize sounds  
to form words

select words with  
the same initial and  
final sounds

isolate individual  
sounds within words

synthesize sounds  
to form nonwords

segment nonwords  
into phonemes

repeat both  
numbers and  
nonwords  
accurately

rapidly name  
numbers, letters,  
colors or objects





# ORAL LANGUAGE: VOCABULARY AND COMPREHENSION

Vocabulary

Language  
Structures-  
Syntax and  
Semantics

Verbal  
Reasoning-  
Inferences,  
Metaphors

Listening  
Comprehension

Morphology



# Informal Assessment of Morphological Knowledge

## Compound Words

- Ask the individual to break the compound word into its part and say what each part means.
- Ex: fireman....fire...man

## Affixes

- Add an affix to a known word and have the individual describe the new meaning.
- Ex: skip...skipped

## Derivations

- Provide words that have the same base word and ask the individual how the words are related.
- Ex: ear, earring, eardrum, earache

## Pictures

- Use pictures to illustrate grammatical morphemes, providing a receptive evaluation of knowledge. Ask the individual to point to the picture that illustrates the correct grammatical morpheme.
- Ex: The boy is jumping over the fence.



# PROCESSING SPEED AND WORKING MEMORY

## Processing Speed

- **Rate at which an individual will scan or identify stimuli, make quick associations, make accurate decisions and move quickly to the next item.**

## Working Memory

- **Involves the capacity to hold information in immediate awareness while manipulating or transferring that information in some way.**



# DECODING, ENCODING, READING FLUENCY: PHONICS, FLUENCY AND COMPREHENSION

**Decoding (Word Reading- Real and Nonsense)**

**Encoding (Word Spelling- Real and Nonsense)**

**Orthographic Awareness**

**Reading Fluency- this includes accuracy, rate and prosody**

**Oral Reading**

**Silent Reading**

**Writing Sample**



# ORTHOGRAPHIC PROCESSING ASSESSMENT

## Writing Name

- Ask the child to write his/her first and last name.

## Writing the Alphabet

- Ask the child to write the letters of the alphabet in order.

## Recognizing Letters

- Present written letters and ask the child to tell you the letter name. Make a page with letters that are similar in visual appearance (e.g., b and d, n and u). Ask the child to name the letters and count the number of errors made.

## Recognizing Words

- Present a written sentence and ask the child to find a word, any word, and circle it. This illustrates if the child has the concept of a printed word. Extend the activity by asking the child to circle a specific word.



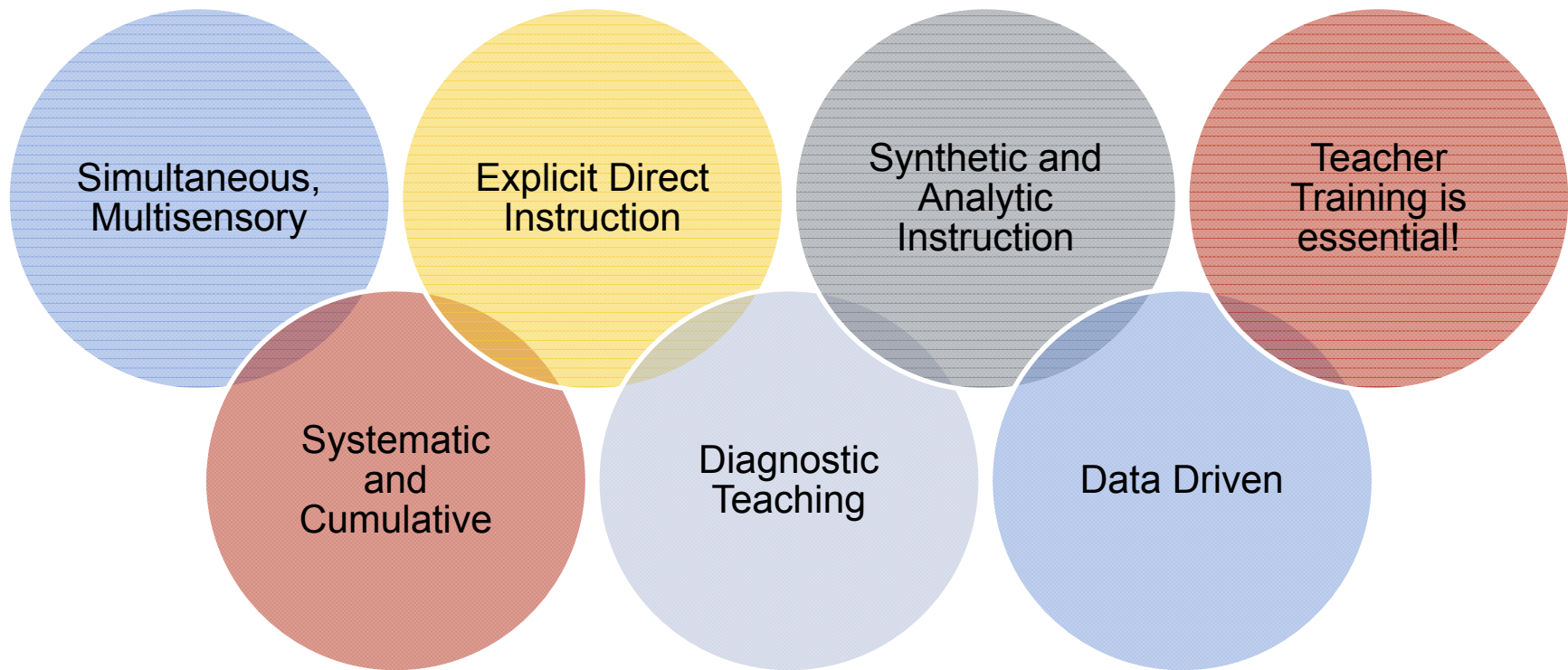
# PATTERN TO LOOK FOR IN TEST RESULTS TO DIAGNOSE DYSLEXIA

- Difficulty reading single words;
- Particularly difficulty decoding nonsense or unfamiliar words;
- Reading Comprehension often superior to decoding individual words;
- Inaccurate and labored oral reading of passages;
- Trouble reading small “function” words- *that, is, for, an;*
- Slow reading; and/or
- Poor spelling.

(Overcoming Dyslexia (2003)- Sally Shaywitz, M.D.)



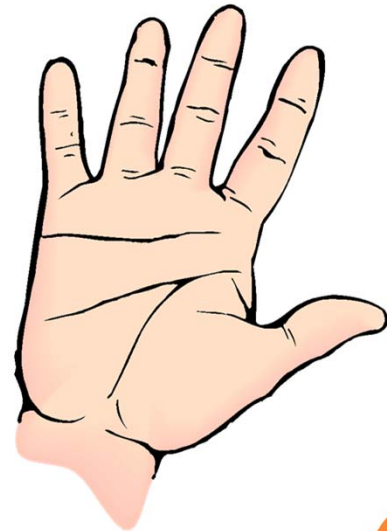
# STRUCTURED LITERACY





# SIMULTANEOUS, MULTISENSORY

- Teaching is done using all learning pathways in the brain (visual/auditory, kinesthetic-tactile) simultaneously in order to enhance memory and learning.



# SYSTEMATIC AND CUMULATIVE

- The organization of material follows the logical order of language. Follows a planned scope and sequence.
- Begins with the easiest and most basic elements and progresses methodically to more difficult material. Progresses in measureable, manageable steps.
- Each new concept is based on previous learning.
- Concepts taught must be systematically reviewed to strengthen memory. Skills are continually reviewed, practiced, extended, and once mastered, applied to more and more difficult text.



# EXPLICIT DIRECT INSTRUCTION

- Concepts are clearly and directly explained.
- No assumptions are made about the student's ability to make inferences.
- Instruction requires the direct teaching of all concepts with continuous student-teacher interaction.

(Explicit Instruction: Effective and Efficient Teaching – Anita L. Archer, Charles A. Hughes)





# DIAGNOSTIC TEACHING

- The teacher must be adept at prescriptive or individualized teaching.
- The teaching plan is based on careful and continuous assessment of the individual's needs.
- The content presented must be mastered to the degree of automaticity, that is the skill can be performed with relatively little effort and attention.



# DATA DRIVEN

- Progress monitoring assessments are used frequently.
- Curriculum-based measurements are emphasized to assess progress.
- Guided practice is continuous and ample.
- Independent application is expected.



# SYNTHETIC AND ANALYTIC INSTRUCTION

- Synthetic Instruction presents the parts of the language and then teaches how the parts work together to form a whole.

Example: con + struct + tion = construction

- Analytic Instruction presents the whole and teaches how this can be broken down into its component parts.

Example: teacher = /T/ + /Ē/ + /CH/ + /ŪR/



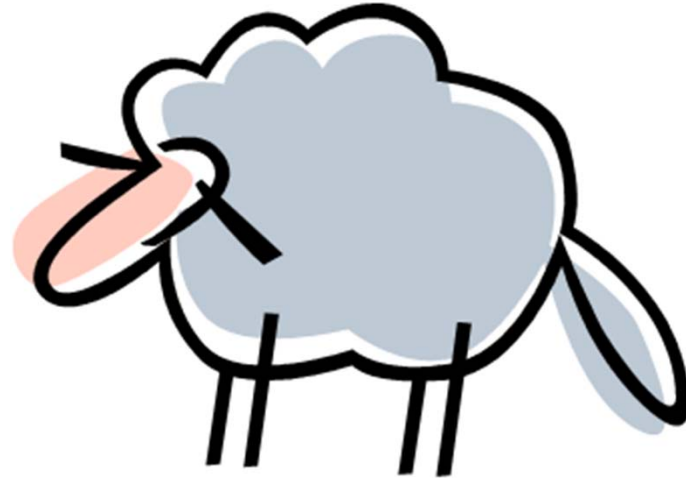
# CONTENT: WHAT IS TAUGHT?

- Phonology and Phonological Awareness
- Sound-Symbol Association
- Syllable Instruction
- Morphology
- Syntax (reading comprehension and written expression)
- Semantics (comprehension)
- Fluency
- Handwriting



# PHONOLOGY AND PHONOLOGICAL AWARENESS

- Elkonin Boxes



# SOUND-SYMBOL ASSOCIATION

**Sound-symbol association-** knowledge of the various sounds in the English language and their correspondence to the letters and combinations of letters that represent the sounds.

Sound-symbol association must be **mastered in two ways-** visual to auditory and auditory to visual.

Students must master the blending of sounds and letters into words as well as the segmenting of whole words into sounds.



# SYLLABLE INSTRUCTION

A syllable is a unit of oral or written language with one vowel sound.

6 basic types in the English language

Syllable division rules are directly taught in relation to word structure.



# 6 SYLLABLES

Closed syllable	bat, will, trip, mash, bend
Vowel-Consonant-e syllable	rope, safe, lime
Open syllable	he, go, my, flu
Consonant-le syllable	middle, table
R-controlled syllable	bird, star, her, corn, turn
Vowel digraph/Diphthong	beat, toad, sweet, saw, boil, snow





# MORPHOLOGY

A morpheme is the smallest unit of meaning in the language.

Morphology is the study of how morphemes are combined to form words.

Study of word origins- Anglo-Saxon, Latin, Greek.

The curriculum must include the study of:

- Base words= stand alone words
- Roots= the original form from which a recorded word is derived
- Affixes= prefix and/or suffix



# ORAL VOCABULARY

Select words for direct instruction that are Tier 2 words  
(Isabel Beck)

Repeated Exposures

Active Use

- Explanation of multiple meanings.
- Using in varied contexts (role playing, sentence writing, picture captioning, comic strip bubbles).

Emphasis on relationships between and among words and concepts

- Semantic (graphic) organizers.
- Comparison charts.



# FLUENCY

Simultaneous oral reading.

- Reading together with an adult or peer.

Alternate oral reading.

- Reading alternate pages with an adult or peer.

Repeated reading.

- Practicing a passage 3-4 times to improve fluency.

Charting results of practice on a simple graph.

Increasing speed in word reading and other underlying skills.

Norms for adequate oral reading fluency are well established by research.



# SYNTAX: WRITTEN EXPRESSION AND READING COMPREHENSION

Sentence  
structure

- who + did what

Sentence  
expansion

- when, where, why and how

Grammar

- parts of speech and their usage

Mechanics of  
Language

- capitalization/punctuation

Topic Sentences

Paragraphs and  
Essays

- planning, outlining, graphic organizers



# SEMANTICS

## Reading Comprehension

- summarization skills
- questioning; text implicit or text explicit
- visualization
- comprehension monitoring

## Developed on a continuum....

- listening comprehension skills
- comprehension at the sentence level
- comprehension at the paragraph level



# HANDWRITING INSTRUCTION

Handwriting instruction needs to be explicit and systematic.

Students use large muscle movements to practice handwriting; guided scripts to discuss movements.

Kinesthetic memory is the earliest, strongest and most reliable form of memory.



# ACCOMMODATIONS

- Fair does not mean treating every student exactly the same.
- Fair means providing each student with what that student needs to have a chance to succeed.

“For a dyslexic reader, accommodations represent the bridge that connects him to his strengths, and , in the process, allows him to reach his potential.” Shaywitz, 2003



# ACCOMMODATIONS ADDRESS A NEED

Note  
taking

Reading

Writing

Spelling

Memory

Math

Homework

Testing





# ACCOMMODATIONS

Use of word banks

Don't penalize for spelling; grade for content

Don't ask them to read out loud in front of the class

Extended time

Read tests aloud; read text to student when appropriate

Provide copies of notes

Provide study guides

Provide graphic organizers or structured templates for writing tasks

Provide advanced organizers at the beginning of units

Provide access to audiobooks



# REFLECTION

*It is more than just,  
“THERE’S AN ‘APP’ FOR THAT!”*

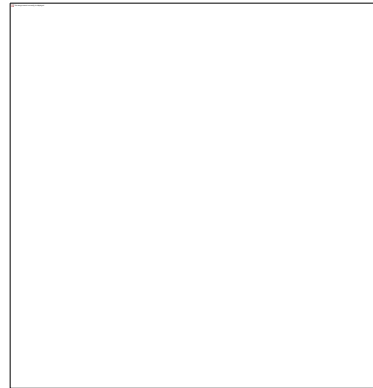


## ASSISTIVE TECHNOLOGY

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# LAP TOPS OR PHONES OR TABLETS

## OMG!





# MAC OR PC???

Do You Use a PC or a Mac?



# EVEN COOKIE MONSTER HAD TO ADJUST



# REASONS NOT TO USE TECHNOLOGY

**For purposes of today's discussion.....**

- ❑ **You love having the latest toys**
- ❑ **The “COOL” factor**
- ❑ **You like gadgets**
- ❑ **It's better than dealing with people**
- ❑ **The community wants the latest “tech” in the schools.**
- ❑ **The students love their iPads, or phones etc.**
- ❑ **It is fun to take stuff apart + see how it works.**





# YOU'RE NOT BUYING TECHNOLOGY~

With assistive technology you

MUST THINK ABOUT BUYING SOLUTIONS!

THEREFORE

YOU MUST CLEARLY IDENTIFY THE PROBLEM  
YOU ARE LOOKING TO SOLVE.



TECH SHOULD HAVE A PURPOSE!!!

What is it the student is having  
difficulty doing that could be done  
BETTER or EASIER with the use of  
Technology?



## WHAT ARE SOME PROBLEMS TO SOLVE?

- ❑ Needs help on writing assignments,
- ❑ Needs to hear what he is reading.
- ❑ Always or often forgets homework and/or other assignments
- ❑ Has trouble breaking down projects/papers etc into manageable tasks,
- ❑ Needs help to study and memorize,



# TODAY'S AGENDA

## READING AND WRITING

- ❑ What are some **solutions**, hardware, “apps”, web sites that can work on the various platforms:
  - ❑ MAC OS
  - ❑ Windows
  - ❑ Android



# THE AREAS FOR TODAY'S DISCUSSION

What are the problems accessing the curriculum for the student with Dyslexia that can be addressed by Assistive Technology?

Remember! We are not using AT to teach the student to read. He needs a teacher for that.

We are trying to address the problem that reading poses for him in accessing his education.



# NOTE TAKING: CLASSROOM AND MEETINGS



# TAKING NOTES:

## WHAT IS THE NEED/PROBLEM?

- ❑ You can't spell what you want to write.
- ❑ You can't write fast enough to keep up.
- ❑ It is hard to write and listen carefully at the same time. (listening memory, attention)
- ❑ You can't hold what the teacher has said long enough in memory to get it down. (working memory)
- ❑ Your handwriting is REALLY, REALLY bad.





# READING MATERIALS FOR SCHOOL/HOMEWORK:

## ***WHAT'S THE PROBLEM?***

- Student cannot “decode” the words in front of him.
- The sight sound relationship is lost on him.
- Reading, however, is essential for his ability to keep pace with his peers in class.
- As a non-reader, he is constantly behind in general knowledge/information as well as content of a course. Gap increases over years.
- Even with remediation, his gains in reading will take time. Therefore, HOW WILL HE ACCESS THE SAME INFORMATION AS HIS PEERS? ***NOW-in real time!***



THE ANSWER TO BOTH THESE ISSUES

ASSISTIVE TECHNOLOGY

HE IS INTELLIGENT.

DO NOT EQUATE ABILITY TO READ WITH  
INTELLECTUAL CAPACITY.

SOMEHOW WE HAVE CONFUSED THIS ISSUE AND THE  
MINDSET HAS TO CHANGE.

*ALSO, AT is a REQUIRED consideration PER IDEA*



# TEXT TO SPEECH TECHNOLOGY: READING

## Factors to consider:

- Can range in cost from free to low/medium cost.
- If you provide it in school, it is only logical to think the student will need it at home to read his homework assignments too. (most companies offer low cost, at home solutions)
- It can run the gamut **from** digital texts from places like:
  - [www.Bookshare.org](http://www.Bookshare.org)
  - Learning Ally (formerly RFBD) <https://www.learningally.org/>
  - Commercially available digital texts that can convert text to speech.
- ***TO Programs*** that convert text to speech.



# “SOME” EXAMPLES



# WORD TALK: FREE.

[HTTP://WWW.WORDTALK.ORG.UK/HOME/](http://www.wordtalk.org.uk/home/)



The screenshot shows the WordTalk website homepage. At the top, a red navigation bar contains links to various resources: "Our websites:", "CALL Scotland", "Books for All", "Communication Passports", "Digital Exams", "ICT and Inclusion", and "Scottish Voice". Below this, the "WordTalk" logo is displayed next to a small circular emblem. To the right of the logo, there are links for "Accessibility" and "Text Size" with three "A" icons. A sub-header reads "Free text-to-speech plugin for Microsoft Word". A horizontal menu bar includes links for "Home", "About", "Installation Guide", "Toolbar Guide", "Support", "Licence", "Contact Us", and "Download". The main content area features a large banner with a Microsoft Word interface showing the WordTalk toolbar. The banner text states: "A free Windows text-to-speech plugin for Microsoft Word. It will speak the text of the document and will highlight it as it goes." A red starburst graphic on the right says "It's free!". Below the banner, there are four columns of links: "Installation Guide" (Easy step by step instructions, Read more), "Support" (Some FAQs on common issues, Read more), "About WordTalk" (What is WordTalk and why use it?, Read more), and "Download it Now!" (Get WordTalk for free!, Download now). At the bottom left, it says "Downloads to date: 125,173" and "In association with:" followed by the CALL Scotland logo and text: "Based at the University of Edinburgh, Scotland, they provide communication and assistive technology for". On the bottom right, a dark blue box contains three links with plus icons: "Quick guide on using the Toolbar", "The licence agreement", and "Frequently asked questions".

Our websites: | [CALL Scotland](#) | [Books for All](#) | [Communication Passports](#) | [Digital Exams](#) | [ICT and Inclusion](#) | [Scottish Voice](#)

# WordTalk

Free text-to-speech plugin for Microsoft Word

[Home](#) | [About](#) | [Installation Guide](#) | [Toolbar Guide](#) | [Support](#) | [Licence](#) | [Contact Us](#) | [Download](#)

**A free Windows text-to-speech plugin for Microsoft Word.**

It will speak the text of the document and will highlight it as it goes.

**It's free!**

**Installation Guide**  
Easy step by step instructions.  
[Read more](#)

**Support**  
Some FAQs on common issues.  
[Read more](#)

**About WordTalk**  
What is WordTalk and why use it?  
[Read more](#)

**Download it Now!**  
Get WordTalk for free!  
[Download now](#)

**Downloads to date: 125,173**

**In association with:**

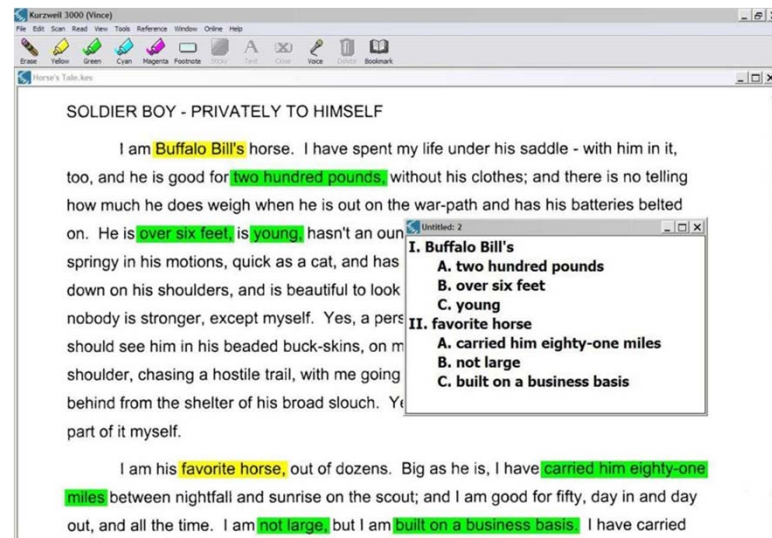
**CALL Scotland**  
Based at the University of Edinburgh, Scotland, they provide communication and assistive technology for

- + Quick guide on using the Toolbar
- + The licence agreement
- + Frequently asked questions

# READ OUT LOUD PROGRAMS

Kurzweil 3000

Highlighting and  
summarizing





# TEXT HELP: READ AND WRITE GOLD

Mac or PC

Laptop or Tablets



Read  
&Write  
Gold



## IN ADDITION,

Today's latest operating systems in both WINDOWS and the MAC Operating System (X), have the ability to both:

- convert text to speech and
- convert speech to text.





# NOTE TAKING: CLASSROOM AND MEETINGS

There are a variety of tools available

- ❑ Microsoft One Note\*\*
- ❑ Ever Note
- ❑ Note Everything
- ❑ Pulse/Echo Pen by Livescribe\*\*
- ❑ Digital Recorders\*\*



## TWO TYPES OF SOLUTIONS

**Some solutions will still require writing.**



# MICROSOFT ONE NOTE

(STILL HAVE TO WRITE)

MAC OR PC

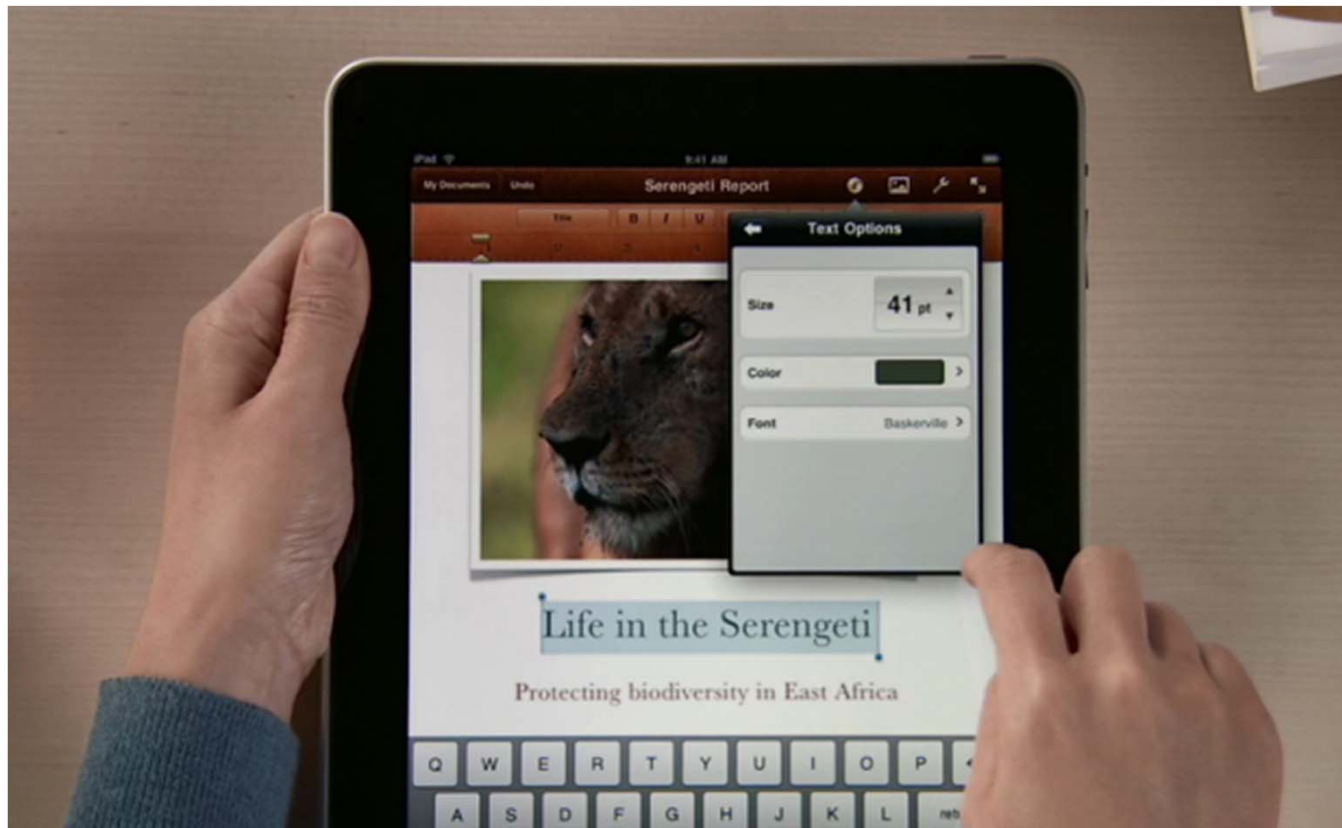
iPad or lap/desktop



# EVERNOTE: IPAD, IPHONE, ANDROID, CPU



# PAGES FOR THE IPAD



# SOME WILL NOT REQUIRE WRITING

PLEASE CONSIDER!

Taking notes is not just about knowing what to write down.

1. It is about auditory working memory.
2. It is about physical disabilities like a paralyzed hand.
3. It is about a writing disability, also physical, like Dysgraphia.
4. And it is about being able to “encode” or spell the words that one needs to write on the page.



# LIVESCRIBE.COM

## NOTE TAKING SOLUTION

Pulse Pen Echo Pen

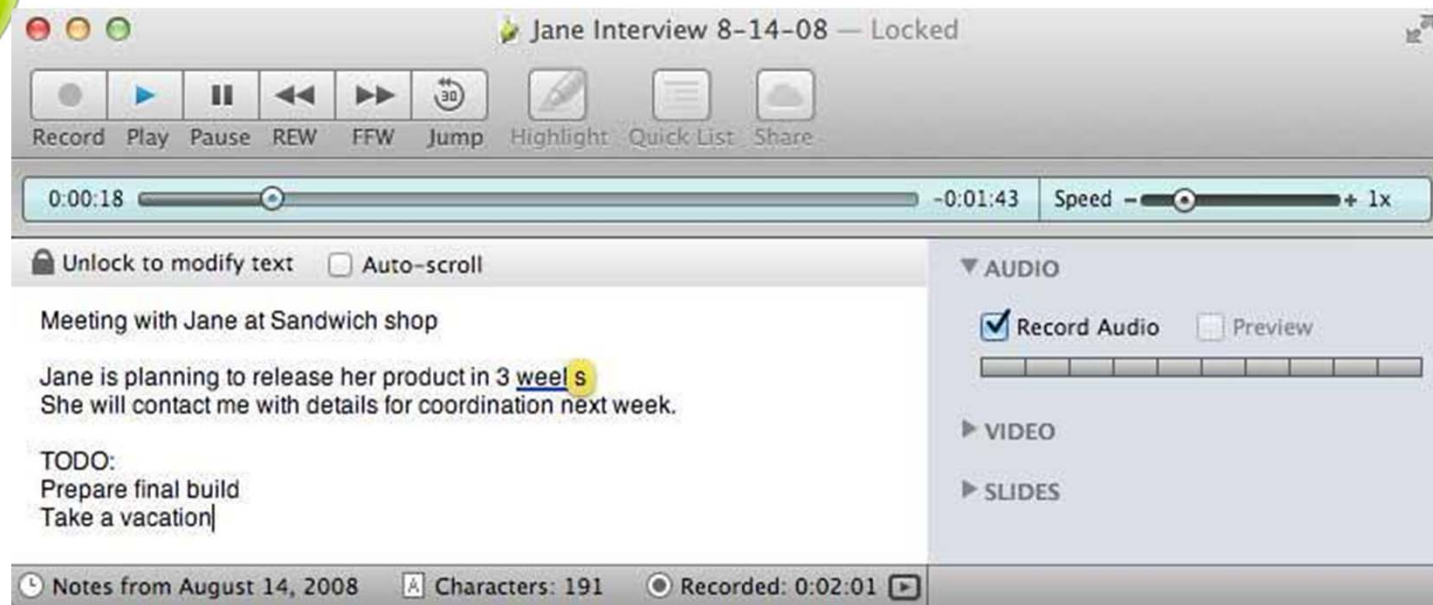
Tablet Laptop Mac/PC



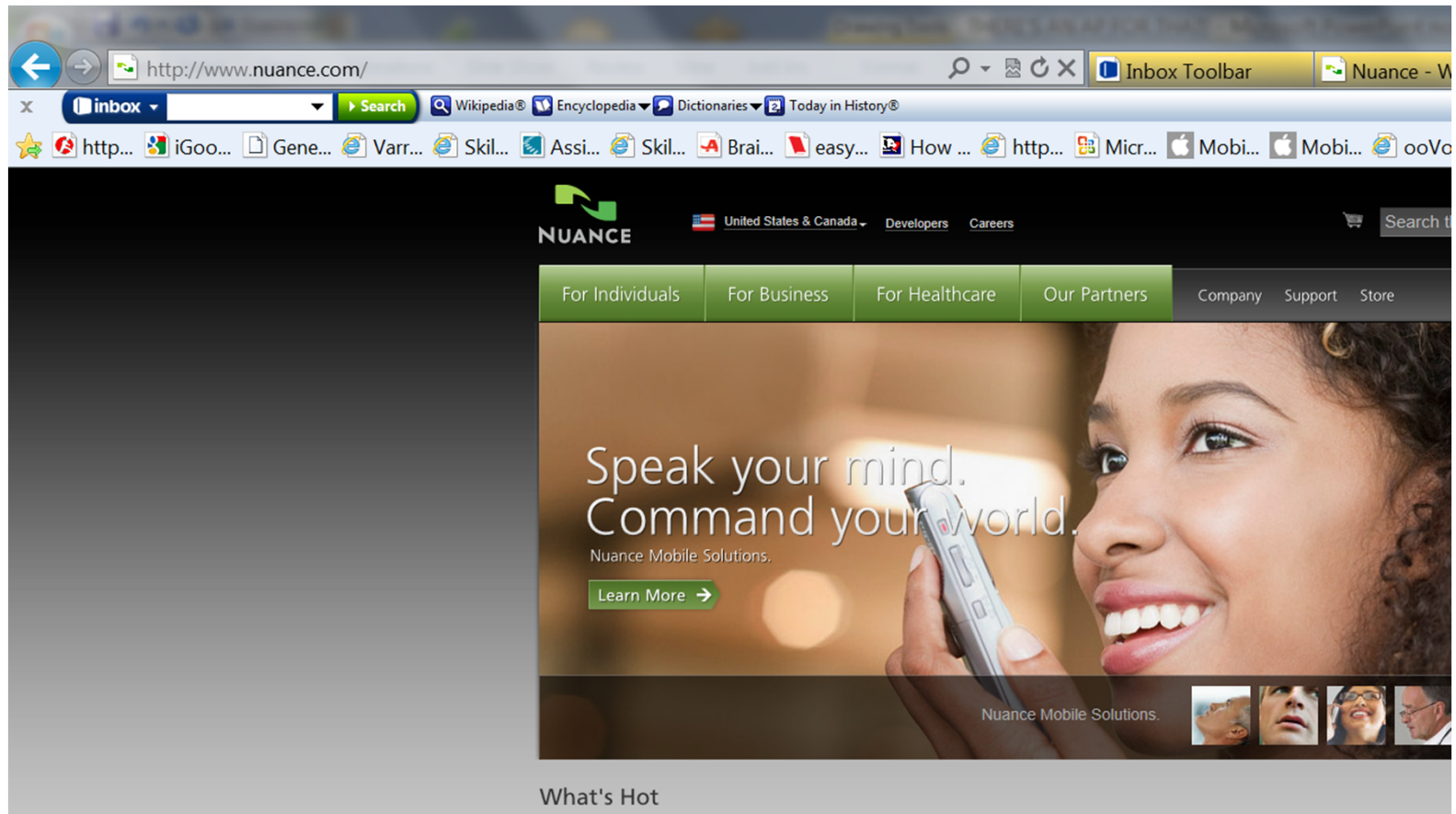


# FOR THE MAC: PEARNOTE

## *USEFULFRUIT.COM*



# DRAGON NATURALLY SPEAKING ET AL.



# SPEAK IT FOR APPLE FAMILY



The image is a screenshot of the iTunes Store interface. At the top is a navigation bar with links for Store, Mac, iPod, iPhone, iPad, and iTunes. Below this is the 'iTunes Preview' section. The featured app is 'Speak it! Text to Speech' by Future Apps Inc. The app icon is a yellow speech bubble with the text 'Speak it!' inside. The description states it is the most advanced text-to-speech solution for iOS 4. Links for the developer's website and support are provided at the bottom of the app preview.

Store Mac iPod iPhone iPad iTunes

## iTunes Preview

What's New What is iTunes What's

### Speak it! Text to Speech By Future Apps Inc.

Open iTunes to buy and download apps.



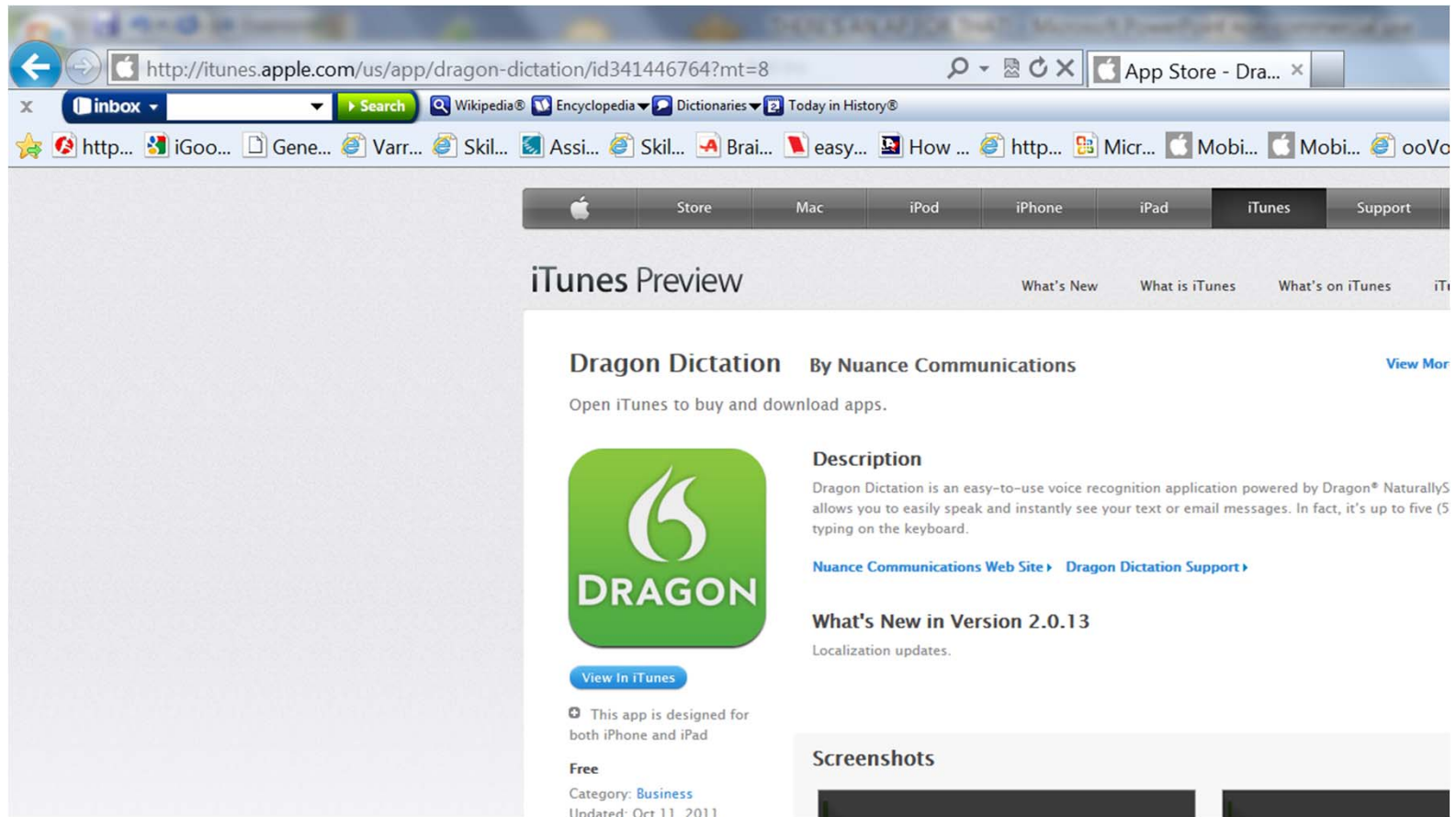
#### Description

Introducing Speak it! 2, the most advanced text to speech solution in the App to work with iOS 4, and take advantage of all the multitasking features.

[Future Apps Inc. Web Site](#) ▶ [Speak it! Text to Speech Support](#) ▶



# DRAGON ON THE iPhone!



AND YET STILL...

There other issues that influence a student's ability to successfully write.



# WHAT IS THE NEED/PROBLEM

- ❑ Long Term Assignments: Students sometimes:
  - ❑ Don't understand what to do
  - ❑ Don't know what to do first
  - ❑ Don't know how to budget time for completing the sections/parts of project
  - ❑ Don't know how to put it all together
  - ❑ Don't know how to study
  - ❑ **Don't have a way to memorize vocabulary/terminology**





# GETTING THE LONG TERM PROJECTS DONE



"MY TERM PAPER HAS HYPERTEXT LINKS, FULL-SCREEN VIDEO CLIPS, ANIMATED FONTS, AND AWESOME 3D SPECIAL EFFECTS... NOW ALL I NEED IS A TOPIC."





# REFLECTION

# THANK YOU!

The New Jersey Branch of the International Dyslexia Association  
P.O. Box 32  
Long Valley, NJ 07853  
908-876-1179  
[www.njida.org](http://www.njida.org)

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