

# Dyslexia, AEM and Technology: Partners for Life

Presenter: Debra Fitzgibbons  
Coordinator Oregon Technology Access Program  
(OTAP)  
And Regional & Statewide Services for Students with  
Orthopedic Impairment (RSOI)

Contributing Editor: Angela Greenwood - MA, MEd,  
CCC/SLP - AEM and AT Facilitator Salem-Keizer

# Objectives

Session participants will understand the potential educational barriers for students with Dyslexia.

Session participants will understand the role of Accessible Educational Materials and technology in supporting students with Dyslexia, and all students.

Session participants will take away a resource list of tools to address areas of educational concerns.

# Agenda

Introductions

Why is this important?

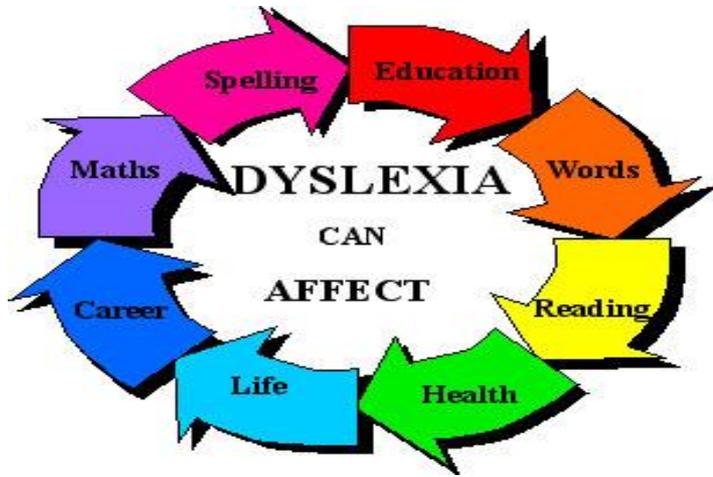
Definitions

Research/Best Practices

Integrating Technology

Where do we go from here?

# Why is it important to understand Dyslexia?



- Dyslexia is common!
- 10% of the total population experiences dyslexia
- Type of specific learning disability primarily affecting reading and spelling
- Neurobiological (brain based) in nature
- Dyslexia persists
- Research shows early intervention is important
- It is backed by legislation

# What is Dyslexia?

“Dyslexia” means a specific learning disability that is neurobiological in origin. It is characterized by difficulties with accurate or fluent word recognition, or both, and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge.

# Origins of Dyslexia

Dyslexia is primarily due to linguistic deficits. Dyslexia is due to a difficulty processing language. It is not due to visual problems, and people with dyslexia do not see words or letters backwards.

National Institutes of Health

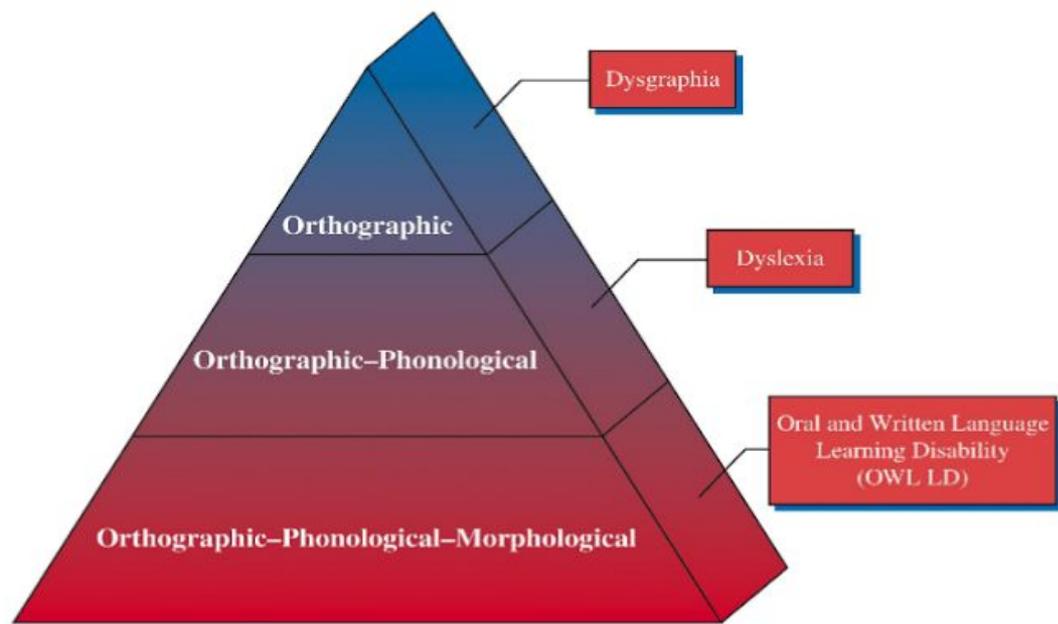


Figure 1 Predicting specific written language learning disabilities from the three word forms

## Furthermore,

- Dyslexia occurs at all levels of intelligence and is a persistent problem that does not represent a transient developmental lag.”

American Academy of Pediatrics, 2011

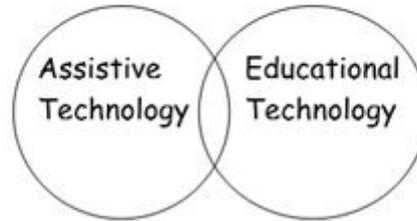
- Dyslexia is persistent: A student who fails to read adequately in 1st grade has a 90% probability of reading poorly in 4th grade and a 75% probability of reading poorly in high school.”

Gabrieli, 2009

## And Also...

- Dyslexia is identifiable, with 92% accuracy, at ages 5 1/2 to 6 1/2.  
National Institutes of Health
- Reading failure caused by dyslexia is highly preventable through direct, explicit instruction in phonemic awareness.  
National Institutes of Health

# Technology Big Picture



<b>Educational Technology in the School Setting</b>	<b>Assistive Technology in the School Setting</b>
<p>Tools for enhancing instruction for all students (general and special education students) or an individual student in a in a classroom via integration of engaging technology.</p> <p>Tools may support all curricular areas (reading, writing, spelling, math, science, social studies, foreign language, art, etc.). It may include teaching basic technology skills such as operation of software, ethics, copyright, etc.</p>	<p>Any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that <u>is used to increase, maintain, or improve functional capabilities of a child with a disability and make progress in his or her IEP goals.</u></p> <p>AT <u>tool(s)</u> overcome a barrier to help a special education student make progress towards their IEP goals by making the task faster, easier, or able to be done in a better way. <b>The student <u>needs</u> the tool in order to make progress towards their IEP goal(s).</b> Traditional modifications are not enough.</p>

# What is AEM?

Accessible educational materials, or AEM, are print- and technology-based educational materials, including printed and electronic textbooks and related core materials that are designed or converted in a way that makes them usable across the widest range of student variability regardless of format (print, digital, graphic, audio, video). IDEA (the Individuals with Disabilities Education Act) specifically focuses on accessible formats of print instructional materials. (AIM)

National Accessible Educational Materials. <http://aem.cast.org/about/what-are-aem>

# What is Universal Design for Learning (UDL)?

“Universal design for learning (UDL) is a framework to improve and optimize teaching and learning for all people based on scientific insights into how humans learn.” It fosters student engagement by presenting information in multiple ways and allowing for diverse avenues of action and expression.

# Best Teaching Practices

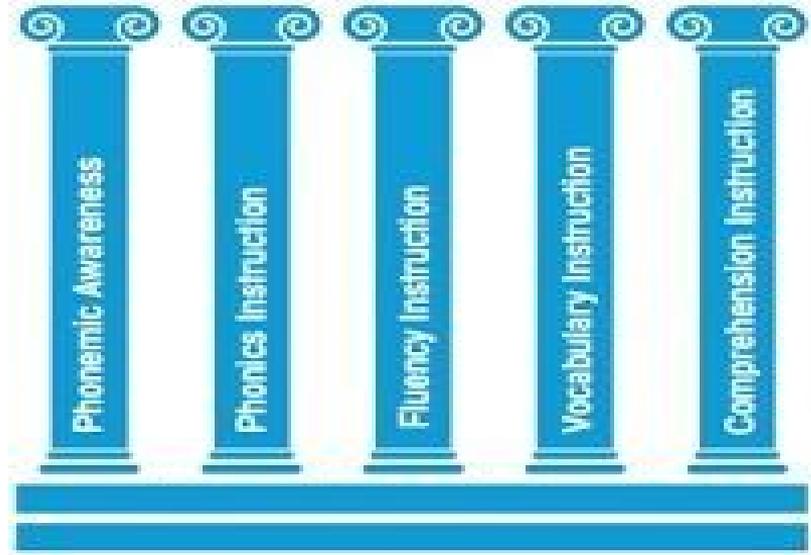
It is important for these children to be taught by a sequenced, systematic and explicit method that involves several senses (hearing, seeing, touching) at the same time. Remedial programs should include specific instruction in decoding, fluency training, vocabulary, and comprehension.”

(American Academy of Pediatrics, 2011)

# National Reading Panel

The best reading approach includes:

- Explicit instruction in phonemic awareness
- Systematic phonics instruction
- Methods to improve fluency
- Ways to enhance comprehension



# Instruction MATTERS!

- Structured
- Multisensory
- Explicit
- Systematic
- Practice
- Diagnostic/  
Prescriptive(personalized)
- Progress monitored
- Cumulative



# Alternative Representation

## UDL Principles!!! (Multiple means of Presentation, Expression & Engagement)

- \*Presentation
- \*Art
- \*Interview
- \*Verbal Tests and Answers
- \*Video
- \*Poster
- \*Role-Playing

# THREE A'S OF DYSLEXIA

In addition to great teaching, students with Dyslexia also need...

- **Accommodations** that meet educational goals
- **Accessible Materials** to support students' needs
- **Assistive Technology** – from low tech to high tech

# Accommodation: Extended Time

- Tests
- Quizzes
- Assignments



\*Time to Process, Re-Read and use Assistive Technology

# Pre-Teaching

- Word Study
- Grammar Concepts
- Vocabulary
- Sentence Structure

## Additional Accommodations:

- Reduced Amount of Problems
- Reduced Reading (or use AT to supplement/ support-text to speech/ audio)
- Targeted Questions - What is the Focus?
- Offer Word Banks
- AT to support symbol/ number writing for math

**\*CAUTION\***

This does not mean simplifying!

# Access

## **ACCESS TO AEM**

(Accessible Educational Materials)

# Tying in the Technology

## Feature Match

One size doesn't fit all.

Determine desired features,  
then select the tools.

# Educational Manifestations of Dyslexia

- Time Management
- Reading Fluency/Decoding
- Reading Comprehension
- Note taking
- Writing
- Left/Right Confusion
- Organization
- Following Directions
- Memorization
- Spelling/Encoding
- Processing Speed

# Text-to-Speech

Access to Grade level content and vocabulary. Reduce Barriers to content knowledge.

Addresses: Comprehension, Fluency, Decoding Support, writing, organization

# Speech-to-Text

Reduce Barriers! Reduce Spelling errors, fine motor difficulty, encourage use of high level vocabulary, written expression support.

Addresses: Note taking, writing, spelling/encoding

# Word Prediction

Spelling support, written expression,  
word banks

Addresses: Note taking, writing,  
spelling/encoding

# Study Skills & Executive Function Support-

Organization, task initiation and  
management, scheduling & reminders,  
transition

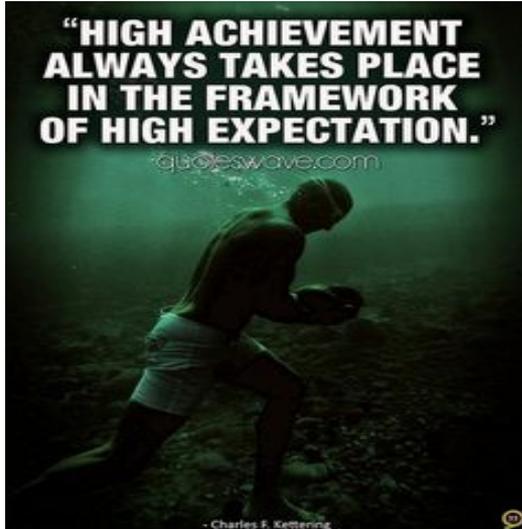
# Note-Taking Support

Independence, processing,  
comprehension, repetition, retention.

The best part?  
*These strategies  
work for ALL  
students!*

(Universal Design for Learning)

# Remember...



## **HIGH EXPECTATIONS**

Promoting a culture of high expectations for all students is a fundamental goal.