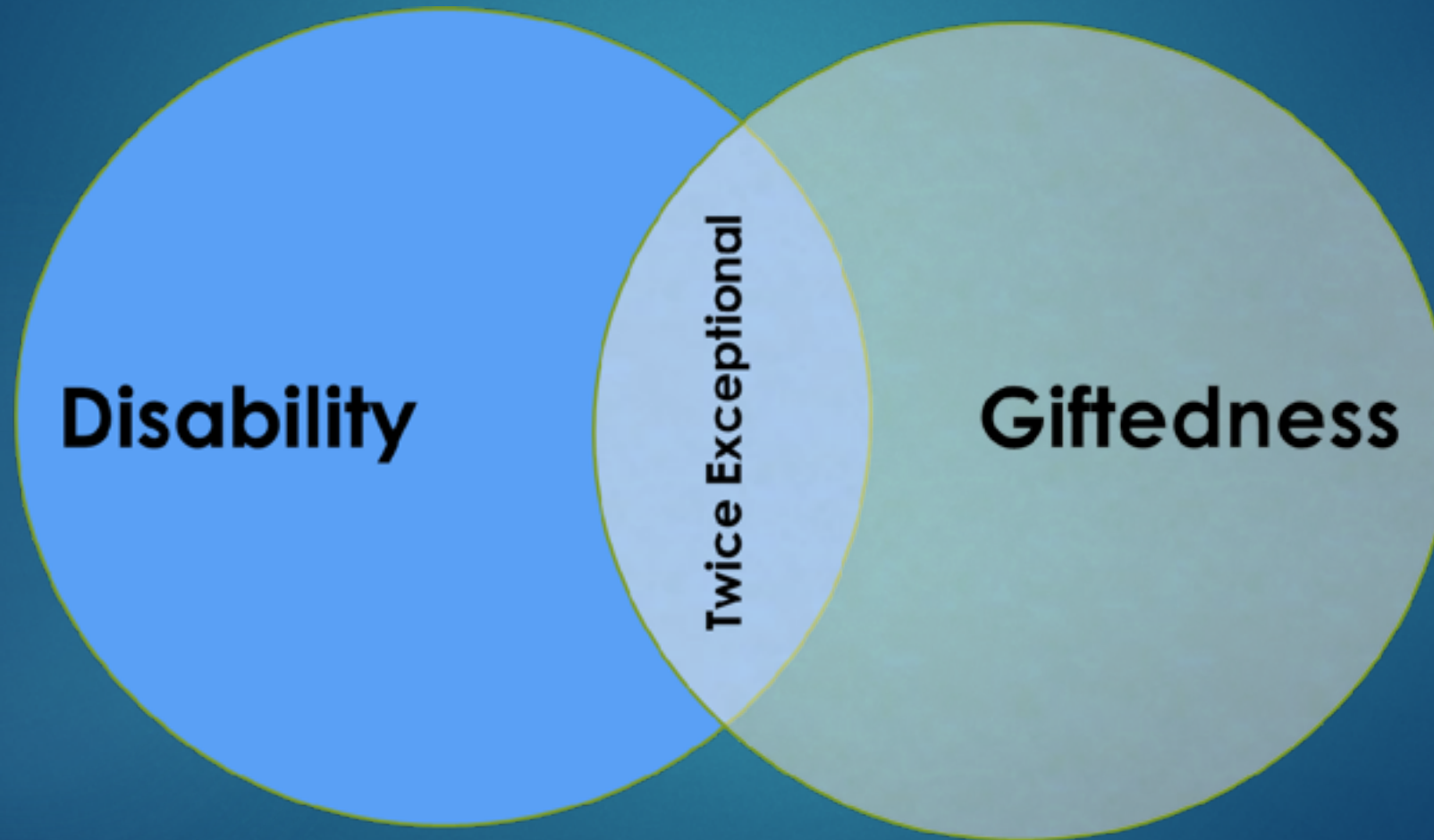


Twice Exceptional Children

DR YARIV DORON, 2017

Twice Exceptional



Terminology



Giftedness

- ▶ Gagné (2008) defined gifts as “the possession and use of **outstanding natural abilities**, in at least one ability domain, to a degree that places an individual at least among the top 10% of age peers”.
- ▶ He defined talents more specifically as the outstanding mastery of systematically developed abilities, called competencies (knowledge and skills).

Terminology

Giftedness

- ▶ For the purpose of giftedness, the mere IQ measure is not always relevant. It is only a rough measure of one's **cognitive potential**, and not necessarily his/her actual performance.
- ▶ Plus – being “**exceptional**” can be manifested in sports, art, cooking, etc. and not just in the classroom.
- ▶ Being “Gifted” **is not always a gift**.. So perhaps the use of “exceptional” will capture those kids' essence in a better clarity.

Terminology



Disability

According to the WHO:

- ▶ Disabilities is an umbrella term, which includes:
 - ▶ **An impairment**: a problem in body function or structure;
 - ▶ **An activity limitation**: a difficulty encountered by an individual in executing a task or action;
 - ▶ **A participation restriction**: a problem experienced by an individual in involvement in life situations.
- ▶ Disability is thus reflecting the **interaction** between features of a person and **features of the society in** which he or she lives.

Terminology

Disability

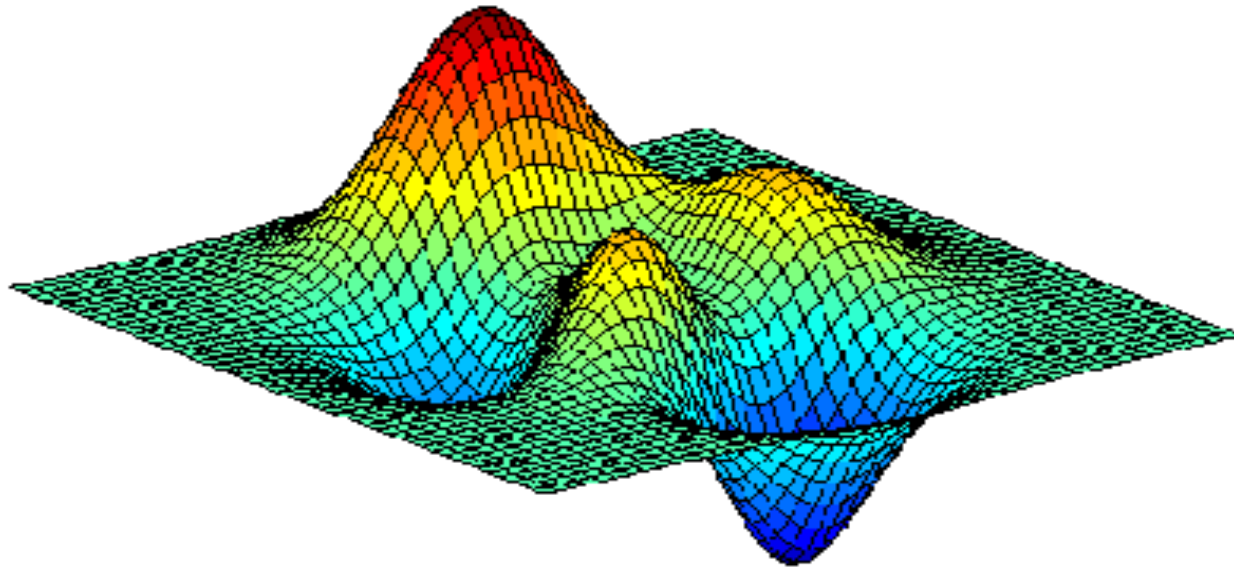
According to the American IDEA Act (Individuals with Disabilities Education Act):

- ▶ A child with a disability means a child evaluated as having mental retardation, a hearing impairment (including deafness), a speech or language impairment, a visual impairment (including blindness), a **serious emotional disturbance** (referred to in this part as “emotional disturbance”), an orthopaedic impairment, autism, traumatic brain injury, any other health impairment, a **specific learning disability**, deaf-blindness, or multiple disabilities, and who, **by reason thereof, needs special education and related services.**

Twice Exceptional

- ▶ The term refers to a child who is showing both giftedness and a “disability”, at the same time.
- ▶ Or put it simply – the child is both **highly-able** and **dis-able** at the same time.

Twice Exceptional



A graphic
representation of
what it truly means
to be twice
exceptional

Twice Exceptional Famous People



Walt Disney -
Dyslexia



Eisenhower- Dyslexia



Thomas Edison –
Dyslexia and ADHD



Robin Williams - ADHD



Stevie Wonder - Blindness



Beethoven - Deafness

Why is it a unique problem ?

Giftedness can mask
disabilities, while disabilities
can mask giftedness

Why is it a unique problem ?

**Difficult to diagnose, and
even more difficult to
attend to.**

Typical characteristics of twice-exceptional children

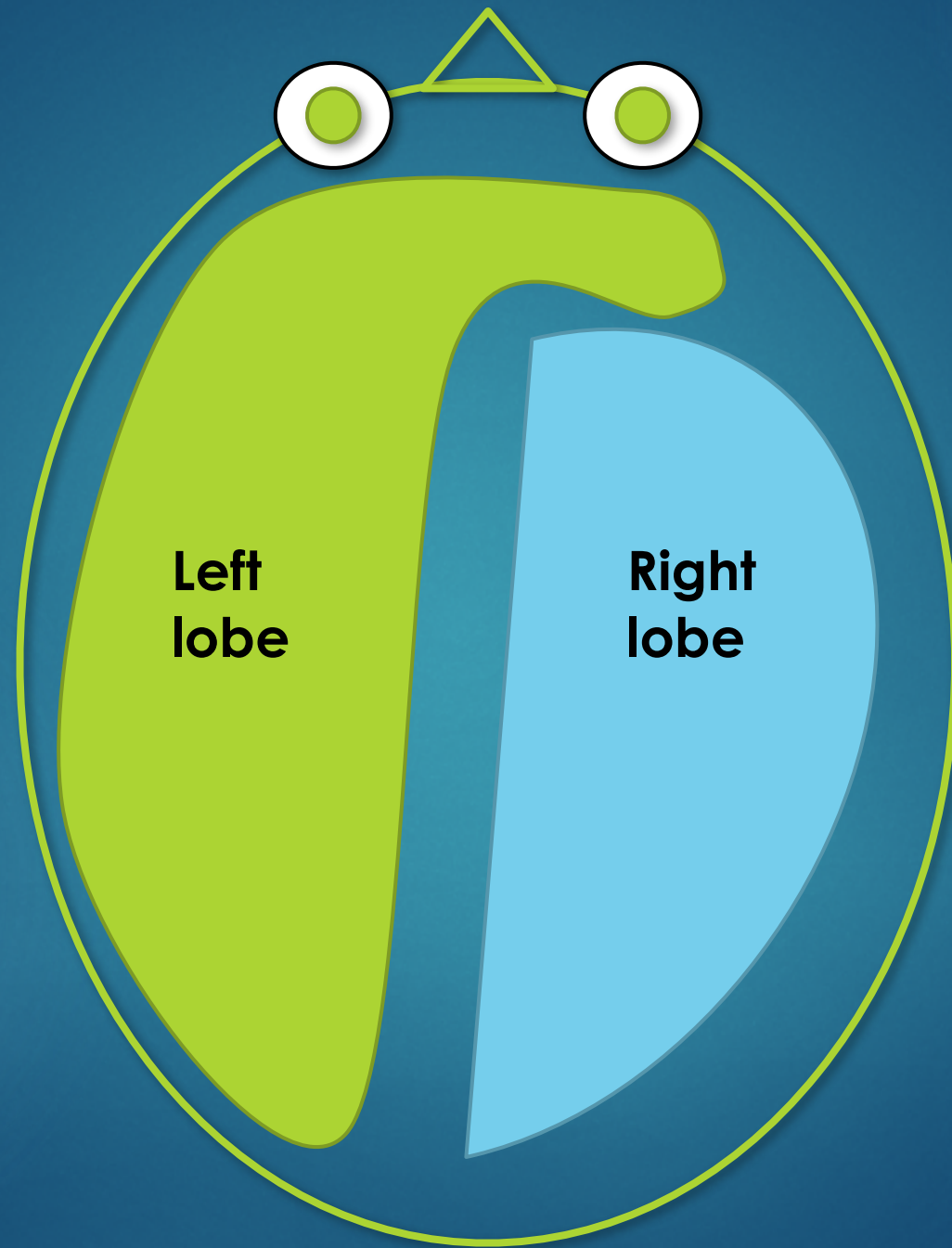
Strengths	Deficits
Superior vocabulary	Poor social skills
Advanced ideas and opinions	High sensitivity to criticism
High levels of creativity and problem-solving ability	Lack of organizational and study skills
Extremely curious, imaginative, and inquisitive	Discrepant verbal and performance skills
Wide range of interests not related to school	Poor performance in one or more academic areas
Penetrating insight into complex issues	Difficulty with written expression
Specific talent or consuming interest area	Stubborn, opinionated demeanor
Sophisticated sense of humor	High impulsivity

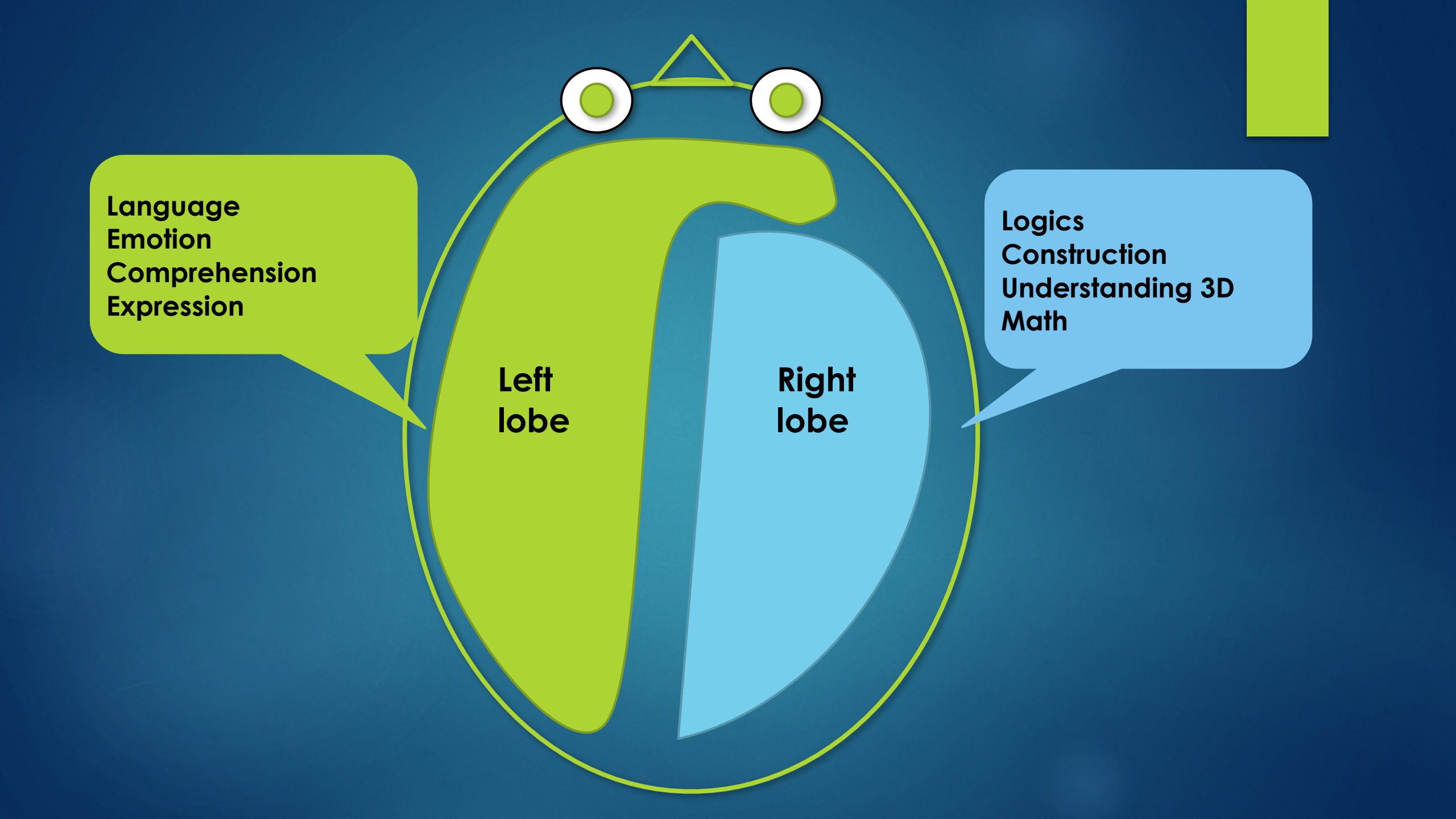


The Neurology of Learning Disabilities

Types of Learning Disabilities

- **Dyslexia**
A language and reading disability
- **Dyscalculia**
Problems with arithmetic and math concepts
- **Dysgraphia**
A writing disorder resulting in illegibility
- **Dyspraxia (Sensory Integration Disorder)**
Problems with motor coordination
- **Central Auditory Processing Disorder**
Difficulty processing and remembering language-related tasks
- **Non-Verbal Learning Disorders**
Trouble with nonverbal cues, e.g., body language; poor coordination, clumsy
- **Visual Perceptual/Visual Motor Deficit**
Reverses letters; cannot copy accurately;
- **Language Disorders (Aphasia/Dysphasia)**
Trouble understanding spoken language; poor reading comprehension





Language
Emotion
Comprehension
Expression

Left
lobe

Right
lobe

Logics
Construction
Understanding 3D
Math



<https://www.youtube.com/watch?v=-4EDhdAHrOg>

**Language
Disorder**

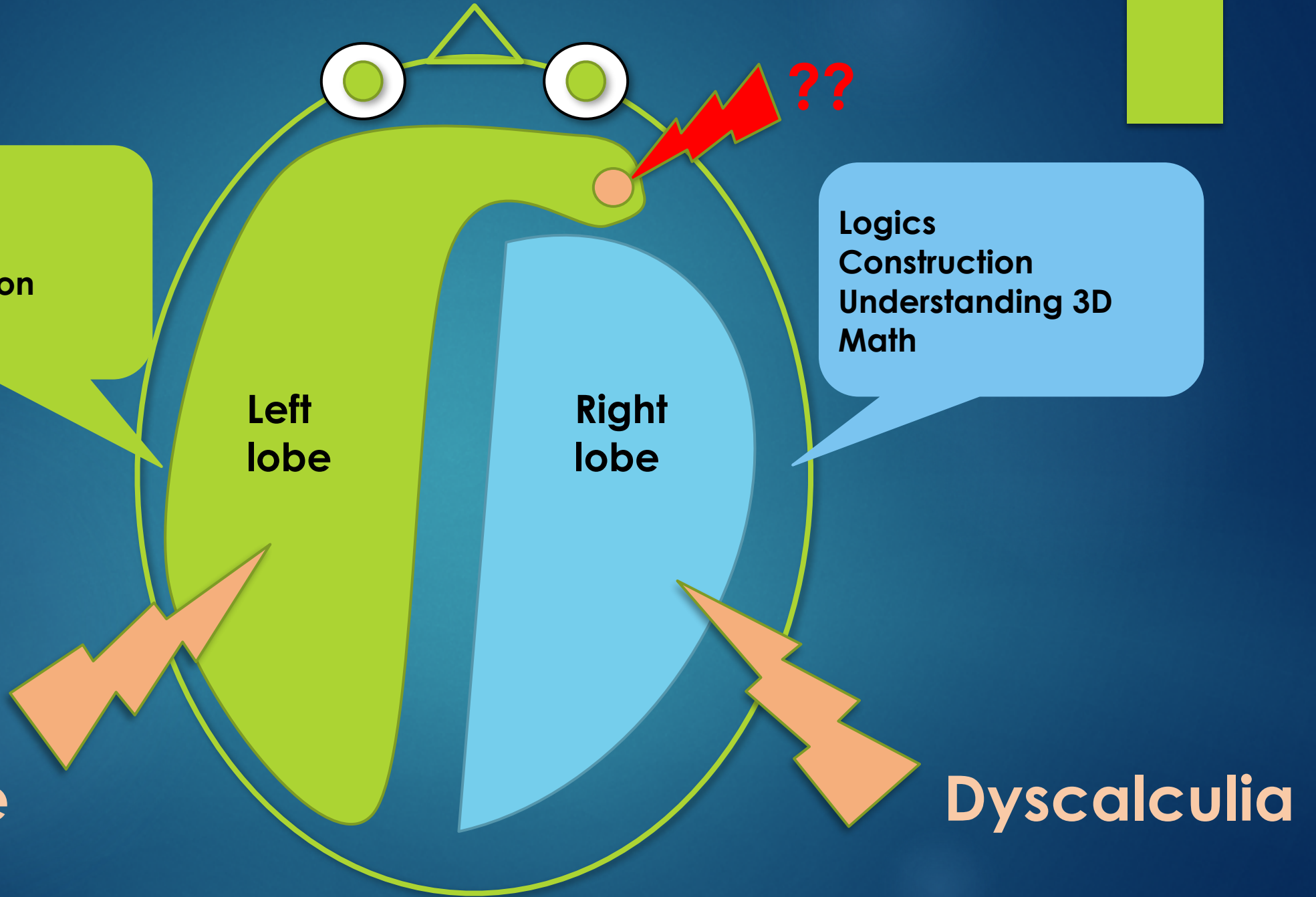
Language
Emotion
Comprehension
Expression

**Left
lobe**

**Right
lobe**

Logics
Construction
Understanding 3D
Math

Dyscalculia



Language Processing



“Harry was afraid”

Harry | was | afraid



My eyes see a sentence

Separate the words

Process each word/
sentence for:

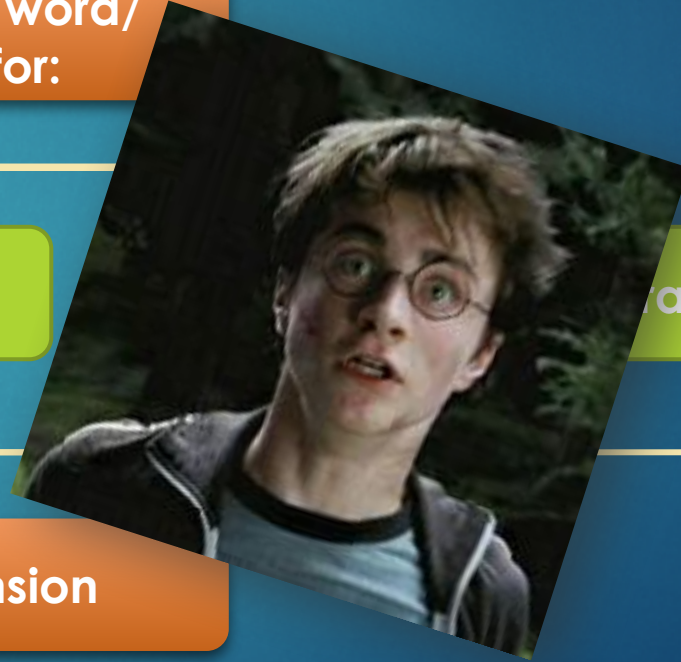
Vocabulary

Emotion

Facts

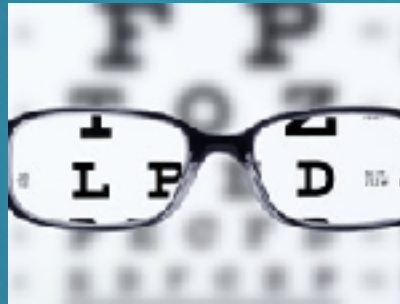
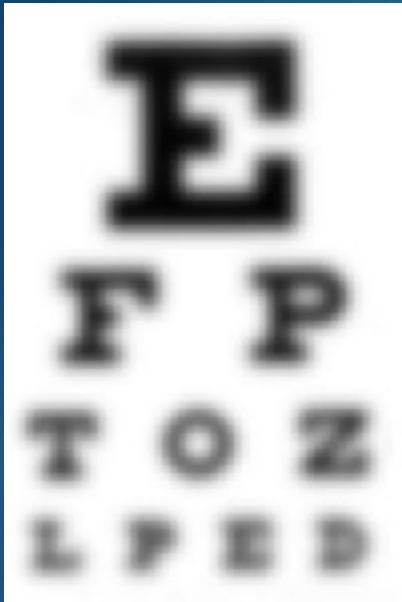
Grammar

Comprehension



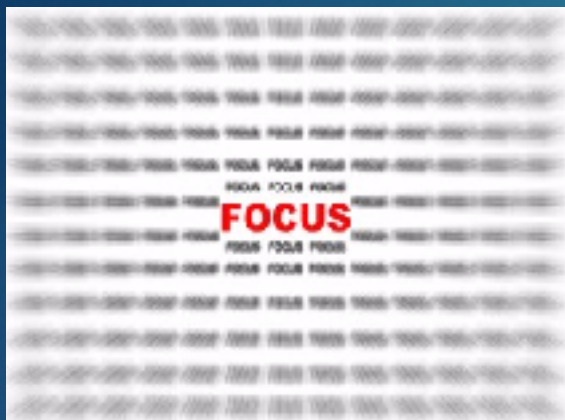
What
can possibly
go
wrong ?!





Corrective
lenses





ADHD and the case of
the dancing letters



Irlen
lenses



TABLE

TA - BLE



2 bits

(Building Blocks)

T-A-B-L-E



5 bits

Leads to “Reading Fatigue” and reading avoidance



I was wondering if it was Sunday

I waswondering if itwas Sunday

- ▶ If you can't grasp a *Word* as an *Entity* (or its *phonetics*), then spacing has no meaning....
- ▶ A simple, yet efficient marker for a learning disorder !

Automated Brain

- ▶ In order to read in a proficient manner, the brain needs to reach a maturity and try not to read the word at all...
- ▶ Basically we would like for the brain to **identify the word as a picture**

("...it doesn't seem right... am I missing an L ?!")



Good example of a Brain Study: If you can read this you have a strong mind:

7H15 M3554G3 53RV35 7O PR0V3 H0W 0UR
M1ND5 C4N D0 4M4Z1NG 7H1NG5!
1MPR3551V3 7H1NG5! 1N 7H3 B3G1NN1NG
17 WA5 H4RD BU7 N0W, 0N 7H15 LIN3 Y0UR
M1ND 1S R34D1NG 17 4U70M471C4LLY
W17H 0U7 3V3N 7H1NK1NG 4B0U7 17, B3
PROUD! 0NLY C3R741N P30PL3 C4N R3AD
7H15.
PL3453 F0RW4RD 1F U C4N R34D 7H15 :)..

Dyslexia

- ▶ NO identifiable causes in most cases
- ▶ Might be caused by:
 - ▶ Hereditary
 - ▶ Teratogenic
 - ▶ Medical
 - ▶ Environmental
- ▶ 6-8% (estimated) in the school population
- ▶ 15% in the total population



Characteristics

Students who have learning disabilities may exhibit a wide range of traits, including:

- ▶ problems with reading comprehension
- ▶ spoken language
- ▶ writing
- ▶ reasoning ability
- ▶ Hyperactivity
- ▶ Inattention
- ▶ perceptual coordination problems may also be associated with learning disabilities.



Symptoms of Dyslexia

- ▶ Problems with grammar, such as learning prefixes or suffixes.
- ▶ Tries to avoid reading aloud in class.
- ▶ Doesn't like reading books.
- ▶ Performs below their expected level, mainly in Language-Based subjects.



Diagnosis

- ▶ In NZ requires a psychological assessment, though the ministry of education will not be able to provide it in all of the cases.
- ▶ The Americans are actually keeping it simple and elegant (**RTI**):
 - ▶ Learning disabilities can be characterized by a discrepancy between a student's ability and his or her achievement in areas such as reading, writing, mathematics, or speaking. This option is up to the individual school, or agency doing the assessment
(**American Ministry of Education**)
 - ▶ **RTI** = Response to Intervention, rather than pursuing costly diagnostic procedures.



Some solutions

- ▶ **Alternative Education** – MOE funded or private
- ▶ **Audio books** – a simple, yet highly effective way to overcome written-language processing
- ▶ Keeps on training the language centres with words, meaning, vocabulary, imagination, etc.



Dyscalculia

a *mathematical disability* in which a person has a difficult time solving arithmetic problems and grasping math concepts.



Dyscalculia-Symptoms

- ▶ Inconsistent results in addition, subtraction, multiplication and division.
- ▶ Poor mental math ability.
- ▶ Poor with money and credit.
- ▶ Poor execution of abstract mathematical reasoning
- ▶ Poor understanding of 3D computation, geometry, etc.



Dysgraphia

a writing disability in which a person finds it hard to form letters or write within a defined space.



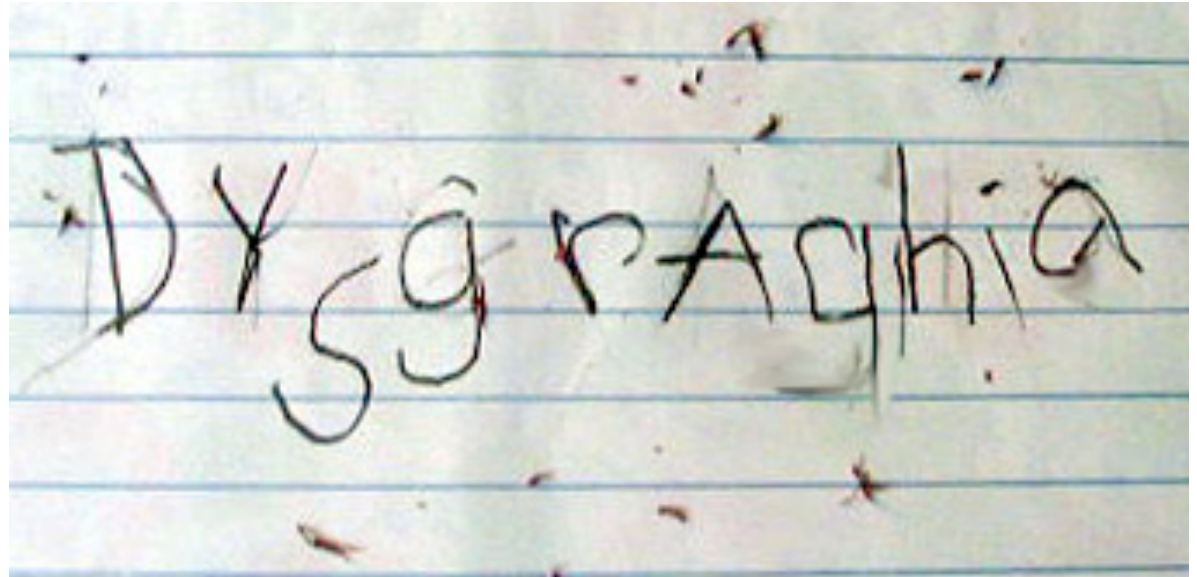
Dysgraphia-Symptoms

- ▶ Strange wrist, body, or paper position
- ▶ Talking to self while writing, or carefully watching the hand that is writing



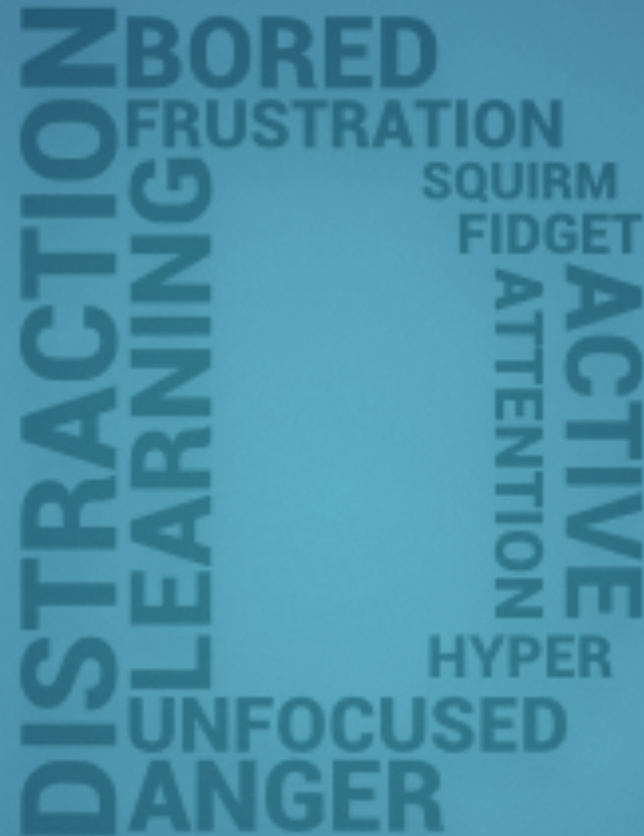
Dysgraphia

- ▶ Generally illegible writing (despite appropriate time and attention given the task)
- ▶ Inconsistencies: mixtures of print and cursive, upper and lowercase, or irregular sizes, shapes, or slant of letters
- ▶ Unfinished words or letters, omitted words





A word cloud on a blue background, tilted at an angle. The words are in various shades of blue and white. The most prominent words are 'UNFOCUSED' and 'ATTENTION'. Other visible words include 'HYPER', 'DISABILITY', 'LEARNING', 'ANGER', 'ACTIVE', and 'BORED'.



A word cloud on a blue background. The words are in various shades of blue and white. The most prominent words are 'DISTRACTION', 'LEARNING', 'BORED', 'FRUSTRATION', 'SQUIRM', 'FIDGET', 'ACTIVE', 'ATTENTION', 'HYPER', 'UNFOCUSED', and 'ANGER'.

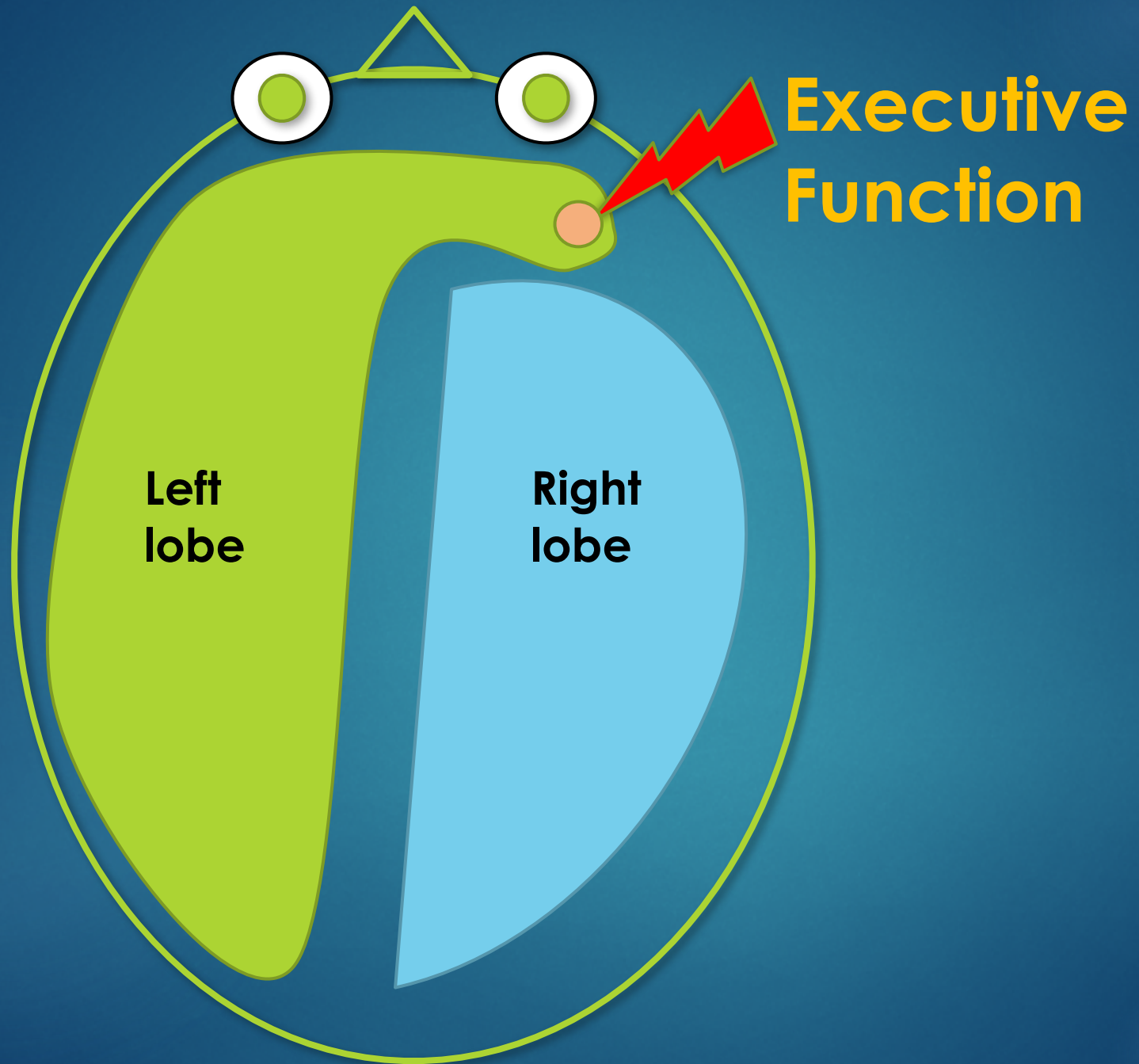


A word cloud on a blue background. The words are in various shades of blue and white. The most prominent words are 'ATTENTION', 'HYPER', 'CONCENTRATION', 'DISTRACTION', 'ACTIVE', 'FRUSTRATION', 'LEARNING', 'DISABILITY', and 'UNFOCUSED'.



A word cloud on a blue background. The words are in various shades of blue and white. The most prominent words are 'CONCENTRATION', 'HYPER', 'CONCENTRATION', 'DISTRACTION', 'ACTIVE', 'FRUSTRATION', 'LEARNING', 'DISABILITY', and 'UNFOCUSED'.

ADHD in a nutshell



Executive Functions

A broad array of classes, used by the brain to manage and prioritise stimulus and responses (I/O), via a set of functions which include: attention, timing, planning, prioritising, modulation, etc.





The Executive Hall

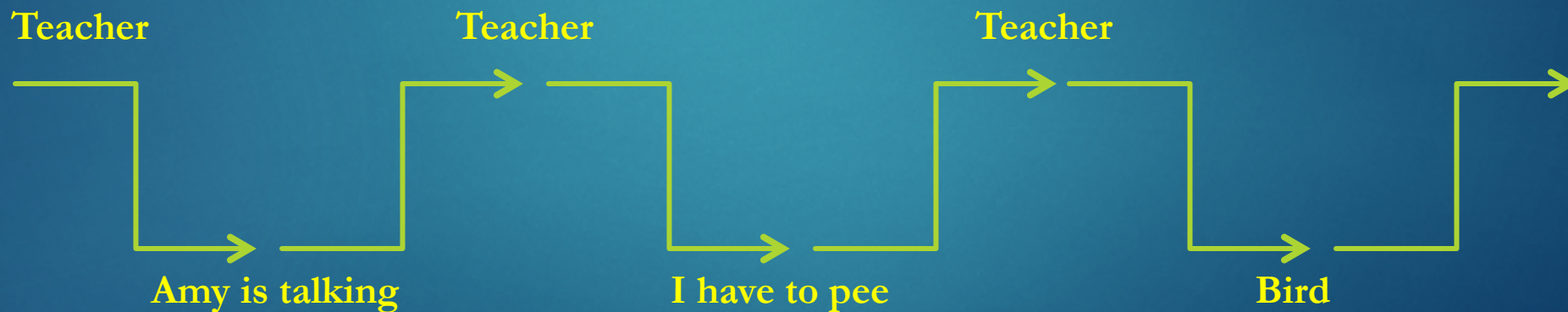




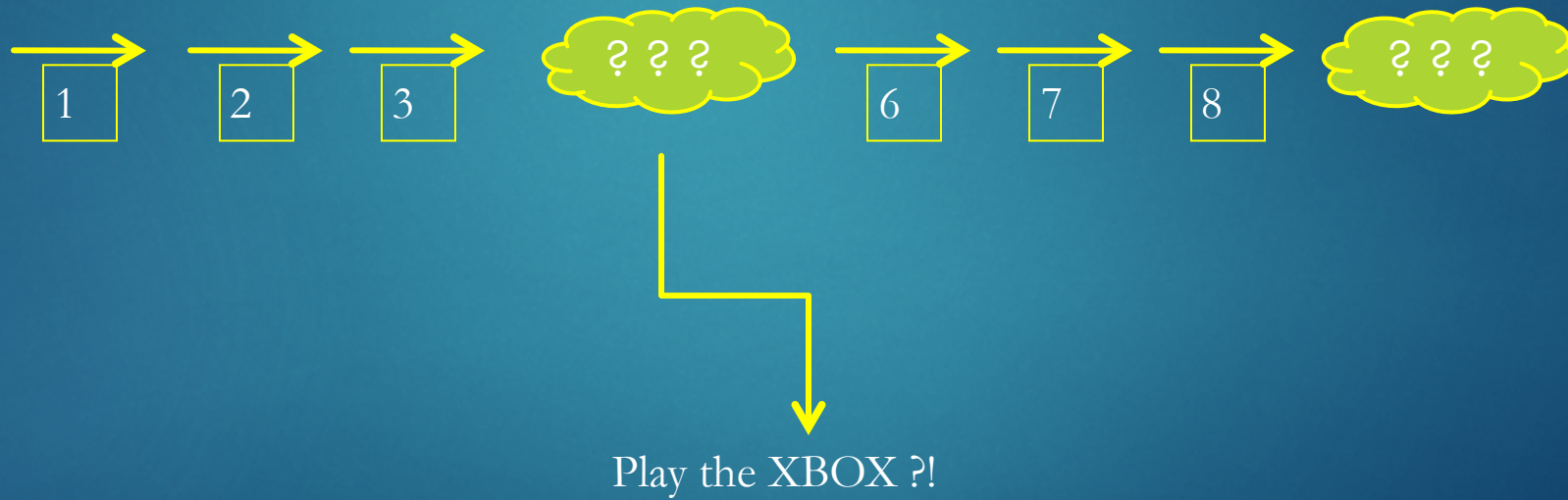
The Executive Hall



Splitting of attention



Planning



**Response
Inhibition**

Output

EXECUTIVE



Let's connect the dots...

Categories of 2e students

Gifted students who are labelled as underachievers

- Their learning difficulties are often attributed to personality and character development problems
- Eventually, reaching the point where they are linked to a disability

Gifted students with severe learning disabilities (LD)

- They are enrolled in special education programs designed for LD students;
- Therefore, their giftedness is usually ignored

Students whose giftedness and learning disability overshadows each other

- Presents as an overall mediocre academic performance due to this “mutual compensation”
- These students are not identified as gifted and, as a consequence, they are not selected for gifted educational programs most of times.
- “fall through the cracks” of the educational system

2e – The Problem

- ▶ By definition, 2e students will be simultaneously developmentally **behind and ahead** of their age peers and present a **complex asynchronistic pattern of learning need**.

2e – The problem

- ▶ 2e are exposed to underachievement and at risk at being **school drop-out (20%)**
- ▶ Considering their potential – this is quite concerning.
- ▶ Twice exceptional children can also exhibit **behavioural issues** in the classroom, as well as develop clinically significant **anxiety, depression**, etc.
- ▶ Based on recent report to MoE (NZ) :
 - ▶ “...Where children have been identified, they have been stuck between the health and education systems, and very few have ended up with access to publicly funded services”

2e – The Problem

- ▶ One of the biggest issues is the actual **diagnosis**.
- ▶ IQ tests are heavily relying on language skills.
- ▶ One possible solution is to focus on the “*Exceptional Qualities*” of the child , rather than zooming in on the IQ.



Possible Solutions

IN NO SPECIFIC ORDER

2e – Possible solutions

- ▶ It takes a team : Baldwin, Omdal, and Pereles (2015) outline *a team problem-solving approach* with the student, family, and a team of professionals that may include general education teachers, special and gifted education teachers, administrators, related service providers, counsellors, and specialty area teachers.
- ▶ This multidisciplinary team works together while “. . . (a) defining areas of need, (b) collecting and analysing data, (c) implementing a plan and (d) evaluating the progress” to understand the diverse array of strategies necessary to meet the unique needs of the 2e student.

2e – possible solutions

- ▶ **Compacting** is the process of allowing highly capable students to demonstrate their previous mastery of some of the required curriculum. Compacting also occurs when students are allowed to demonstrate that they need less time than their peers to learn new material
- ▶ **Differentiation** allows for planning a different plan for different students, based on their unique set of skills and weaknesses.
- ▶ One way to design for differentiation is through having pre-assessment opportunities which will be made available for students who volunteer to demonstrate prior knowledge and mastery of concepts, ideas, and skills.

2e – possible solutions

- ▶ Pursue **systematic diagnostic approach**, not necessarily based on costly psychological assessments.
- ▶ Having genuinely **quiet spaces to work in**, enabling children to concentrate. Alternatively, noise cancelling earphones.
- ▶ **Grouping children with similar strengths** and challenges together – providing like minds, peer support, and reduces isolation.

2e – possible solutions

- ▶ **Emphasizing process over product**, as they benefit from celebrating real learning (process), not just achievement (product).
- ▶ **Alternatives to timed tests** – allow 2e students extra time to compensate for their processing speed. Or base your assessment on projects and submission.

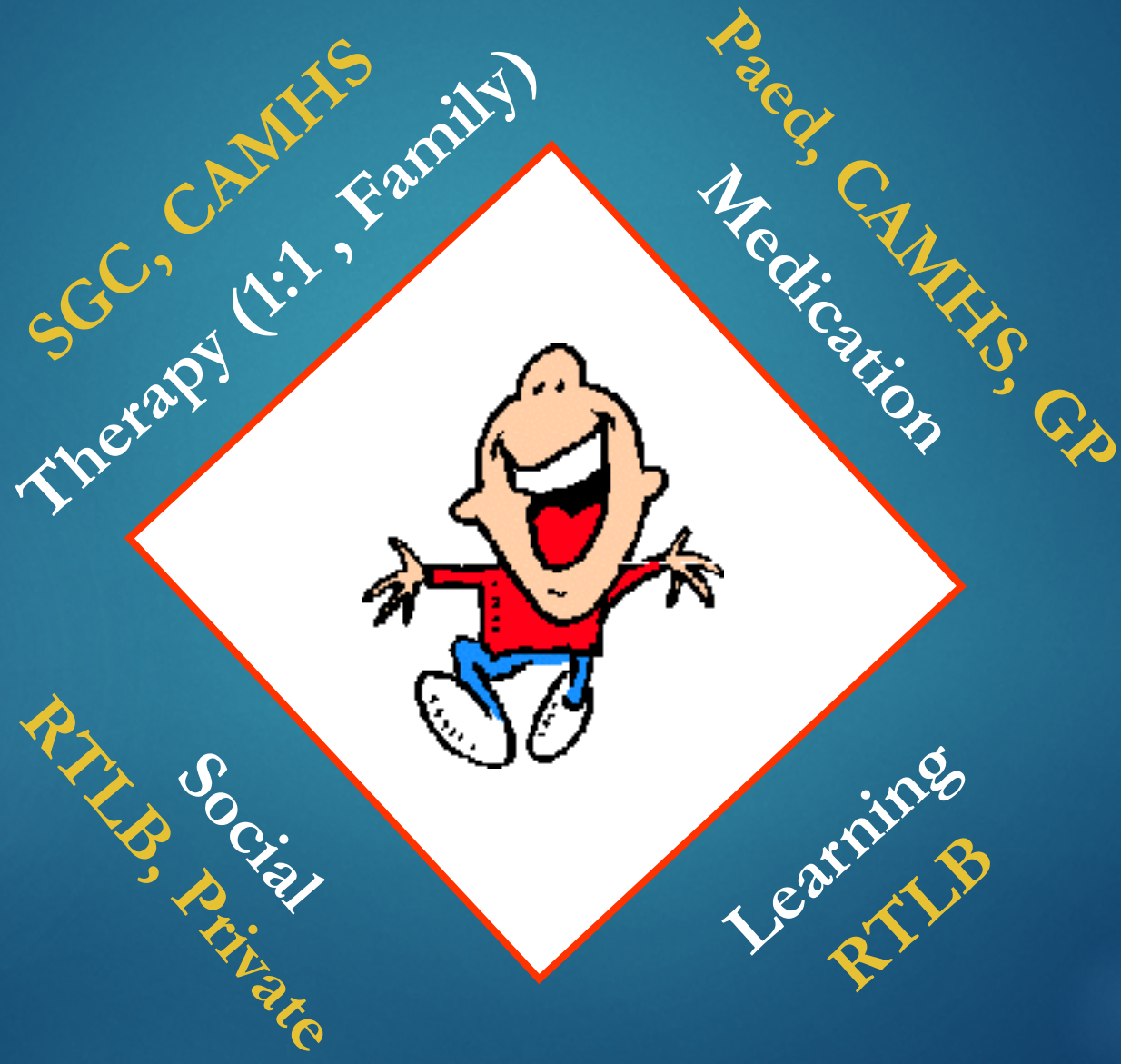
2e – possible solutions

- ▶ **Communities of schools** – primary and secondary schools working in partnership to design and promote teaching and assessment resources, science fairs, etc.
- ▶ Taking time to **genuinely listen to children** when they talk about their challenges and frustrations – don't assume they are lazy, or disrupting the class for no reason.

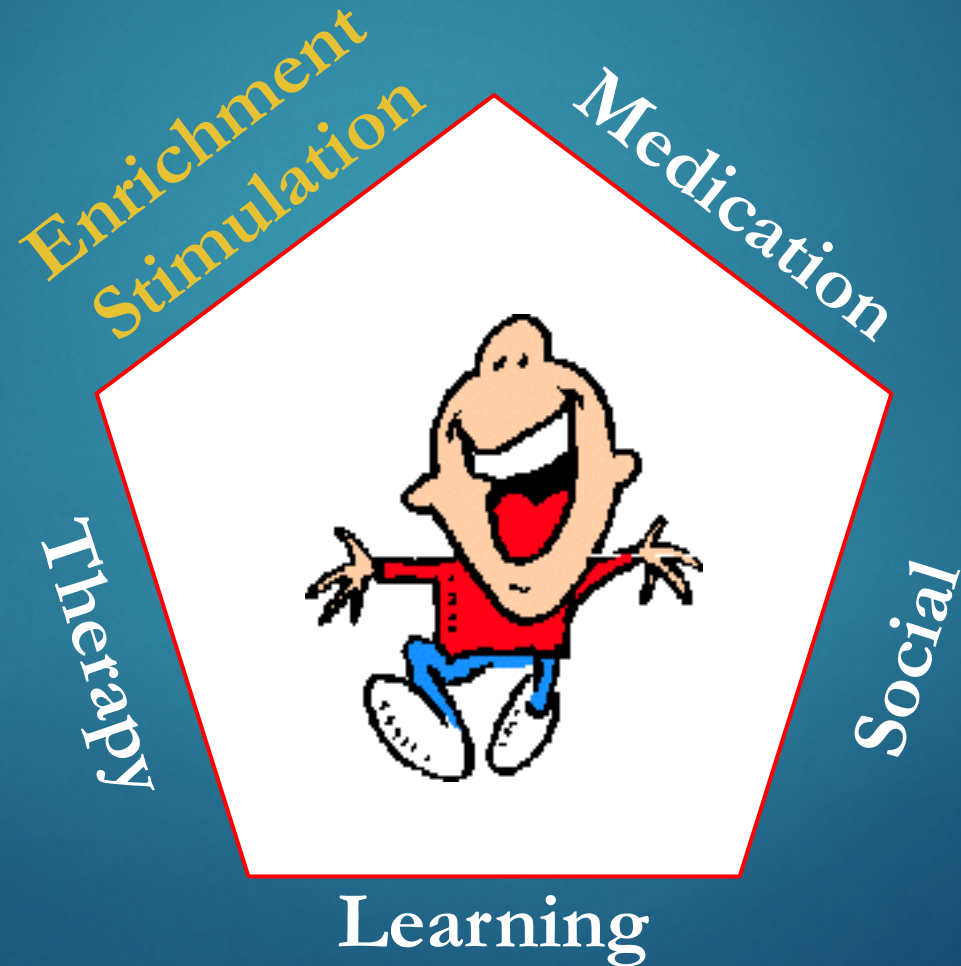
2e – possible solutions

- ▶ National Standards don't necessarily work for these kids. Alternatively – you may want to depend on an individual teacher's ability to test and track the individual's progress.
- ▶ Utilize Reader/Writer assistance (requires funding) or embrace unique technologies (cost effective), to allow students maximize their ability to show their “true” strength and competency.
- ▶ Provide more professional development for teachers on the needs of children with SLDs

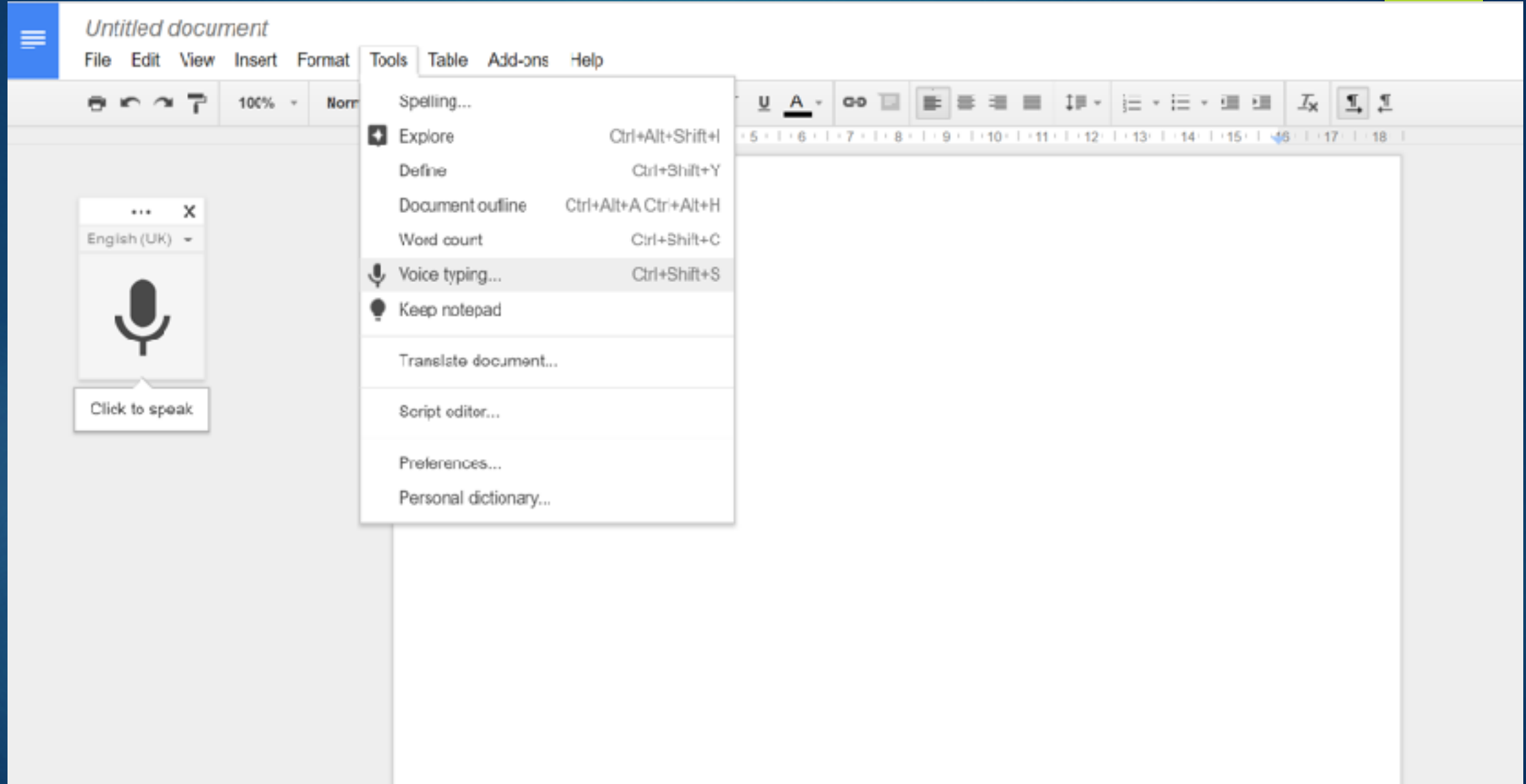
Treatment strategies



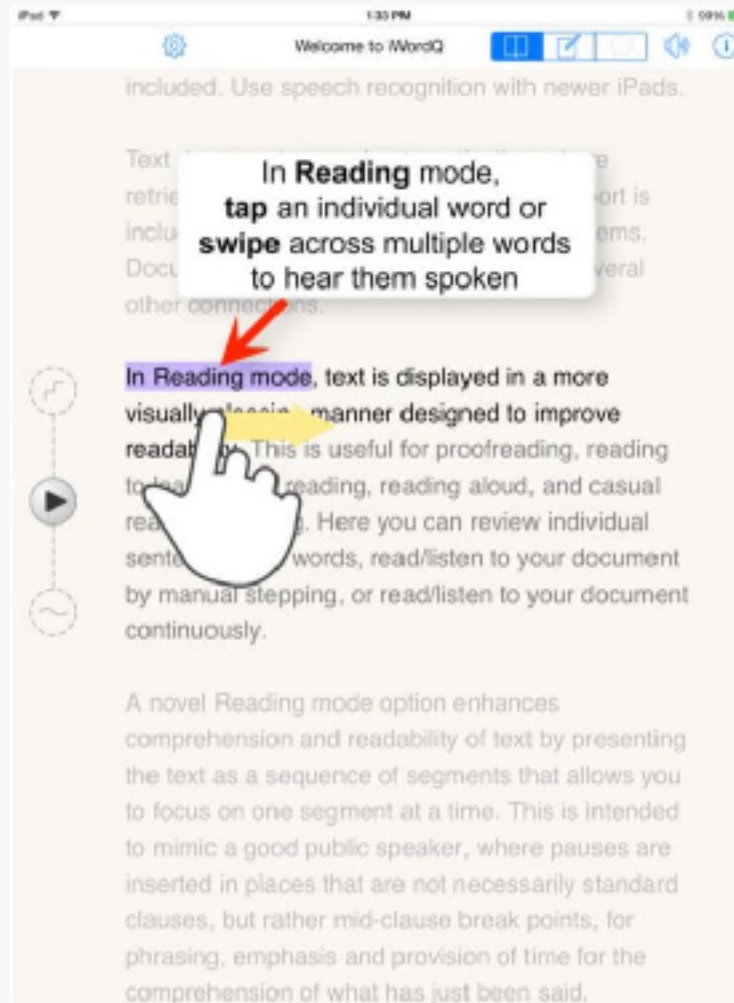
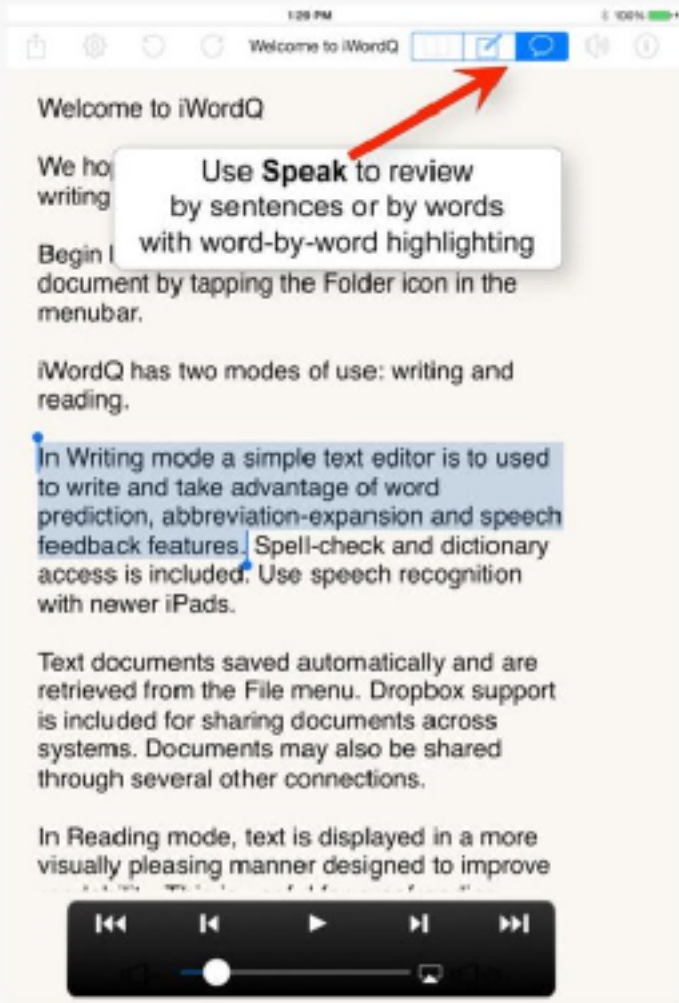
2e - Treatment strategies



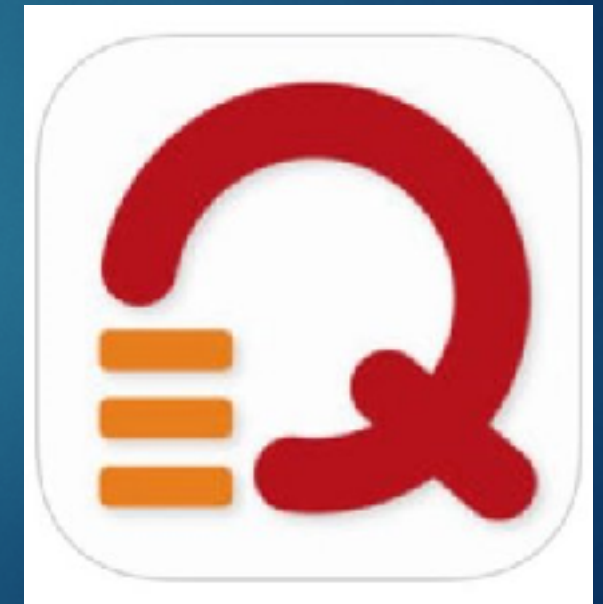
Assistive Technologies



iPad Screenshots

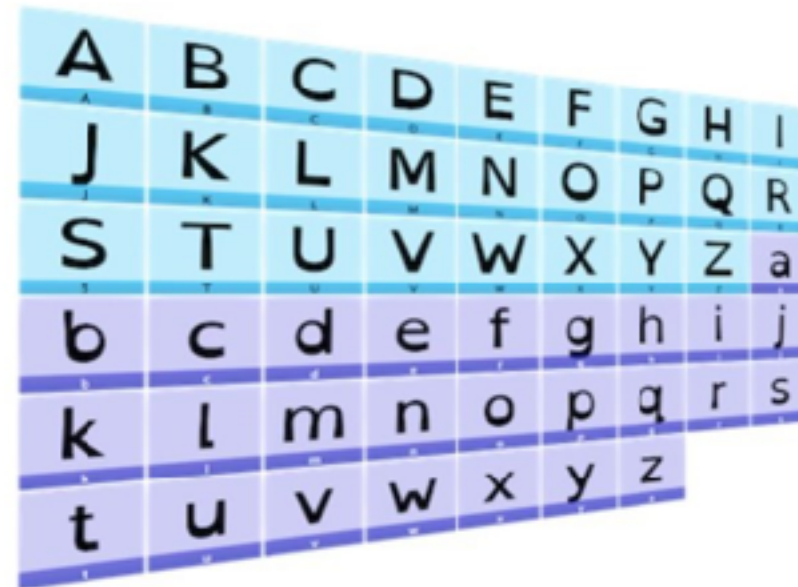


iWordQ iPad app



OpenDyslexic

OpenDyslexic is a new open source font created to increase readability for readers with dyslexia. The typeface includes regular, bold, italic, and bold-italic styles. It is being updated continually and improved based on input from dyslexic users. OpenDyslexic is free for Commercial and Personal use.

[Download Now!](#)

Free text-to-speech plugin for Microsoft Word

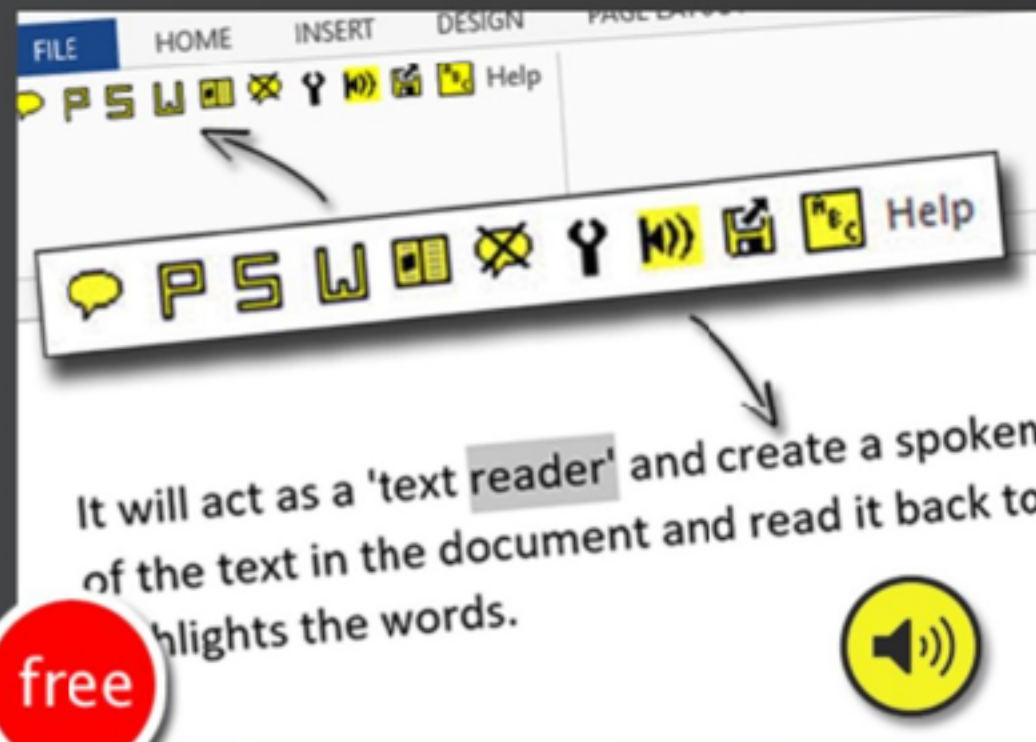
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