

SPECIAL EDUCATION GLOSSARY**In Dysolve[®] Plain Language**

Academic Intervention Services (AIS)

Support services given to struggling learners to help them meet reading and math standards

ADHD

A common disorder affecting brain development. It is characterized by inattention, hyperactivity, and impulsivity. Related conditions are ADD and AD/HD. There is currently no test for a definitive diagnosis (which may account for the confusion over labels and classification)

assistive technology

Anything used to improve the ability of people with disabilities to perform a function, e.g. reading text

Auditory Processing Disorder (APD)

Difficulty in processing speech sounds. Also called *Central Auditory Processing Disorder (CAPD)*

Autism Spectrum Disorder (ASD)

A common disorder affecting brain development. It is characterized by difficulty with communication, social interaction and functions of daily living. Also characterized by limited attention and interests, and repetitive behaviors

anxiety disorder

Anxiety disorder as it relates to academics is persistent and excessive worry over learning and language tasks. It may show physical symptoms

avoidance behavior

Action/inaction to avoid doing a task one finds challenging, e.g., speaking in a second language

behavioral issues	Problems maintaining conduct that is expected in a certain setting. Examples include meltdowns and outbursts
cognition	All mental processes needed for us to function as learners, thinkers and doers. This includes attention, memory, and problem-solving
cognitive impairment	Inability to function in daily life due to problems with the mental processes mentioned above
cognitive overload	Inability to perform a task because current demands on the brain's working memory exceeds the latter's capacity. Children may shut down at this point. (See <i>working memory</i> .)
compensatory method	Teaching method used to help struggling learners/readers cope, such as covering the same spelling rule in different ways to make it stick. But the learning difficulty remains chronic. The alternative is corrective method (see below)
contextual cues (reading)	Hints in the passage to help a reader get the answer. Struggling readers may use contextual cues to get the gist of the passage, even when they cannot read fluently
corrective method	Intervention that gets to the source of the reading/learning difficulty to correct it. Dysolve® is a corrective method
decoding	Relating letters to sounds in order to read written words
defeatism	Feeling of hopelessness often seen in students who had been struggling for many years

deprived learning environments	Home/school settings that lack essential resources for learning. This is one of the factors to rule out before attributing reading difficulty to dyslexia
developmental delay	Lag between a child's abilities and expected abilities for that age. Many factors can cause this delay
developmental milestones	Ages when children are expected to be able to do certain things, such as say first words (1 year)
Diagnostic and Statistical Manual of Mental Disorders - 5th Ed. (DSM-5)	Reference book for brain-related disorders such as ADHD. Regularly updated by the American Psychiatric Association to reflect changes in knowledge about these disorders
differentiated instruction	Teaching modified to accommodate different types of learners. (See also <i>individualized instruction</i> .)
disability	A physical or mental condition that restricts the ability to carry out the functions of daily living. Sometimes also called " <i>disorder</i> " depending on the type. (See <i>learning disability</i> .)
drug holiday	Taking a break from drugs such as ADHD meds, so as to relieve their side effects
dyscalculia	Math disability/difficulty. A learning difficulty that may be due to language processing. Students who have difficulty processing language may miss math instruction and hence fail to build a foundation in math

dysgraphia

Difficulty with written composition. A learning difficulty due to language processing. Dysgraphia often coexists with dyslexia and problems with spelling. This is different from difficulty with handwriting

dyslexia

Difficulty with learning to read. A learning difficulty due to language processing. Also called *developmental dyslexia*, which is different from adults who could read but later experienced this difficulty due to brain trauma, etc.

dyslexia screener

A brief online test a student takes or a questionnaire about a student that a teacher fills in. The results may suggest a risk of reading difficulty. Screeners do not diagnose dyslexia

dyslexia specialist

A teacher usually trained (and certified) to use a compensatory method to help struggling readers cope with their reading difficulty. Also called "*reading specialist*"

dyslexic advantage

Exceptional abilities in people with dyslexia, as in the way they think. They retain this advantage even after Dysolve® has corrected their dyslexia

dyslexic thinking

Cognitive strengths often found in people with dyslexia, e.g. recognizing patterns and thinking spatially and creatively. These individuals retain these strengths even after Dysolve® has corrected their dyslexia

evidence-based

Institute of Education Sciences (IES) criteria:

1. Intervention that shows statistically significant positive effect. The effect may range from “strong” to “promising,” from 1 well-designed experimental study to other kinds of studies
2. Or intervention that is likely to have a positive effect, as deduced from the findings of other research, and includes ongoing efforts to examine this effect

Schools are encouraged to use evidence-based programs. But “evidence-based” does not necessarily mean evidence of strong, or any, effect. None of the evidence-based programs listed in the U.S. Dept of Education’s What Works Clearinghouse (Literacy) showed evidence of significant positive impact on reading for students with dyslexia above grade 3. (Dysolve® is a new evidence-based program that will apply for WWC review.)

Some references use “evidence-based” and “research-based” interchangeably; others see the former as more rigorous

executive function

Related to the management of one’s own mental processes so as to fulfill the functions of daily living, e.g., managing time, focusing on task completion, suppressing the impulse to get distracted. People with ADHD and autism have difficulty with executive function

expressive language disorder

Difficulty expressing one’s meaning through speech or writing.

Receptive language disorder is difficulty understanding speech or writing.

Mixed expressive and receptive language disorder shows both types of difficulties

fidelity of implementation

Degree to which an intervention was implemented as intended

free appropriate education (FAPE)

A right for students with disabilities to get a free and appropriate education

functional magnetic resonance imaging (fMRI)

A non-invasive method to examine brain activity through brain scans. fMRI's study of language processing is limited because the participant cannot speak and move during the experiment

giftedness

Exceptional strength in a domain. Examples are intellectual, mathematical, linguistic, and visuo-spatial giftedness. Also called "*talent*." Some states in the U.S. provide special education for giftedness

grade retention

Repeating a grade for failing to meet benchmarks for that grade

independent reading

Reading on one's own without assistance. At this stage, the student can generally acquire new words in print independently

Individuals with Disabilities Education Act (IDEA)

Federal law that ensures rights and protections to children with disabilities. School districts must find and evaluate them at no cost to the family (Child Find). School districts must provide them with free, appropriate education (FAPE). School districts must ensure that parents/guardians have a voice in the process. IDEA covers more than just public schools

individualized instruction

Teaching modified to accommodate different types of learners. In practice, the instruction is usually modified for groups of learners, not individuals, due to classroom logistics. Such programs are also called "*personalized*" or "*adaptive*." For a program to be truly individualized for each specific person, Dysolve's AI technology is needed

Individualized Education Program/Plan (IEP)

A plan or program developed to ensure that a student with an identified disability receives specialized instruction. Students must have at least 1 of the disabilities listed in IDEA

intellectual disability

Cognitive limitations that restrict the ability to carry out the tasks of daily living, e.g., social interaction and self care

International Dyslexia Association (IDA) A non-for-profit organization in the US. Formerly the Orton Dyslexia Society, IDA promotes an instructional approach called “*Structured Literacy*,” which has its roots in the *Orton-Gillingham* approach. The Orton-Gillingham approach was developed in the 1930s and is still used widely for reading or dyslexia intervention. It is a compensatory method focused on phonics. The IDA publishes its own journals: *Annals of Dyslexia*, *Reading & Writing*, *Perspectives on Language & Literacy*

Internet addiction Excessive screen time, to the detriment of other daily functions and social relations. Now classified as a disorder. The symptoms used to diagnose it are very apparent in some students who seek help from Dysolve®

intervention See *reading intervention*

IQ criterion for dyslexia Previously, IQ was used in dyslexia diagnosis: based on one’s IQ, if the reading level was considerably lower than expected, the discrepancy was seen as an indicator of dyslexia. Although authorities in dyslexia research have since advised against using IQ, it continues to be used (inappropriately) in practice

language acquisition Development of the ability to speak and understand a language, through exposure to it in natural settings. Also called “*language development*.” Language acquisition occurs naturally; *language learning* occurs through instruction, e.g., grammar rules.

“Reading, writing, and spelling acquisition” are development of reading and writing skills, and spelling rules

language-based disorders Conditions rooted in language processing difficulties in the brain. These conditions include dyslexia and speech impairment. They fit within a larger category, *language-related disorders*. Language-related disorders may have other causes but ultimately affect a patient’s language, e.g., dementia

learning disabilities

Conditions that affect the ability to use language or do math. The most common learning disabilities are dyslexia (reading), dysgraphia (writing), and dyscalculia (math). Also called “*specific learning disabilities*” in Education. More commonly called “*learning disorders*” in clinical settings. Some prefer the term “*learning differences*” to emphasize that different learners learn differently, at different rates.

The preferred Dysolve® term is “language processing difficulty” --a difficulty that can be corrected with appropriate intervention

lexile

Scale to measure a student’s reading ability (lexile reader measure) or a text’s difficulty level (lexile text measure). Another commonly used scale is *Fountas & Pinnell Reading Levels*. To interpret a student’s score, refer to the scale

letter reversals

Mixing up letters, e.g., b and d. This is commonly attributed to people with dyslexia. It does happen within this group. The mixup is due to the similarity of the sounds /b/ and /d/

multisensory instruction

Teaching that engages more than one sense at a time. Although teaching of young children is often multisensory, the term is now used by a certain compensatory method for reading intervention. But reading research finds “no compelling evidence” for the efficacy of multisensory instruction for dyslexia (*The Dyslexia Debate*, Cambridge, 2014)

National Reading Panel

Committee tasked by Congress to evaluate reading research and find the best ways to teach reading. The Panel’s 2000 report found these important:

- Phonemic awareness (see definition below)
 - Phonics (see definition below)
 - Reading fluency - ability to recognize words quickly, and read accurately at appropriate speed with expression and understanding
 - Guided oral reading - reading out loud while getting feedback
 - Word acquisition - building written vocabulary
 - Reading comprehension strategies
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Nation's Report Card Results of the National Assessment of Educational Progress (NAEP), a project mandated by Congress and administered by the U.S. Dept of Education. Historically, the Nation's Report Card shows that about two-thirds of 4th and 8th graders fail to meet reading standards. Outcomes have worsened post-pandemic

neurodevelopmental disorders Conditions that affect brain function due to atypical brain development. Examples are learning disabilities, ADHD, autism, and intellectual disability

neuroplasticity Ability of the brain to change and reorganize

neuropsychological evaluation/testing Assessment of skills and abilities, e.g., attention and memory, problem solving, language and math, IQ, and social-emotional functioning. These test batteries are sometimes supplemented with interviews and observations of the child to arrive at a diagnosis. Neuropsychological evaluations are sometimes used to get schools to provide special services, but these assessments are not blueprints for intervention

Oppositional Defiant Disorder (ODD) Behavioral condition in which the children affected are uncooperative, defiant, and hostile toward others. ODD sometimes coexists with dyslexia

Orton-Gillingham A major approach to dyslexia intervention developed in the 1930s and widely promoted in the US. Many commercial programs, dyslexia schools and specialists use this compensatory approach. It is described as a *multisensory, structured approach*

phonemic awareness Sensitivity to the sounds (phonemes) of one's language. People with dyslexia tend to lack phonemic awareness

phonics Instruction that correlates letters with sounds, to teach children how to read

phonological awareness Sensitivity to the sound patterns of one's language. It includes sensitivity to speech sounds (phonemic awareness). People with dyslexia tend to lack phonological awareness

processing speed The speed at which a person's brain processes a certain type of input. The processing speed of a person with dyslexia may be too slow for certain types of language input

reading intervention Curriculum or instruction to help students experiencing reading difficulty/disability. Sometimes used interchangeably with "reading remediation." Traditionally, reading intervention helps students cope but does not correct the difficulty. But Dysolve® now corrects the underlying processing deficits that make reading difficult

Reading wars Ongoing debate between 2 ideologies on how to teach children to read. One is focused on phonics. The other asserts that children will learn to read naturally if they are exposed to a lot of books (whole language)

resource room A designated space where students in special ed are taught or get extra support from the resource room teacher

Response to Intervention (RTI) A proactive approach that schools use to identify struggling learners early, step in (intervene) before they fall too far behind, and give them the support they need to thrive. RTI is often set up as a 3-tiered support system (multi-tiered system of supports or *MTSS*). If a student does not progress, the intensity of support increases from tier to tier:

- Tier 1 - Whole class instruction
- Tier 2 - Small group intervention
- Tier 3 - Intensive intervention

Reading research finds that some students do not improve, even with Tier 3 intervention. They are called "*nonresponders*" or "*low responders*" to intervention. Students with dyslexia may be in this group

special education Specially designed instruction to meet the needs of a student with a disability. This is different from *general education*, which is instruction for all students

twice-exceptional Having a gift/talent and a disability, e.g. being visually talented and dyslexic. One can mask the presence of the other

typically developing children Children in the general population who are reaching developmental milestones at expected rates. Those who do not are called "*non-typically developing children*." Some people prefer the term "*non-neurotypical*"

working memory The small mental "space" for consciously holding and manipulating information, to carry out thinking tasks such as problem-solving and creating new ideas. Because working memory is limited, it cannot process a lot at one time. Thus, language processes usually occur automatically and subconsciously, outside of working memory, e.g., recognizing the sounds in spoken words. But people with dyslexia, who have difficulty processing language, may do so within working memory. This then leaves little room for thinking and learning.

Working memory is different from *long-term memory*, which holds the vast amount of information saved during a lifetime

504 plan Plan for how the school will accommodate a student with a disability in general education (regular classroom). The accommodations usually fall short of the special education provided in an IEP (IDEA). Procedures for monitoring progress are usually less defined, but "disability" is more broadly defined (Section 504 of the Rehabilitation Act). A student who does not qualify for an IEP may still get a 504 plan

LANGUAGE TECHNOLOGY GLOSSARY

In Dysolve® Plain Language

AI (artificial intelligence)

Simulation of human intelligence, often through task performance. AI can take many forms and use different methods. Machine learning is just one recent example. AI as an academic discipline started in the 1950s

autonomous AI

A computer system that makes all decisions needed to complete assigned tasks independently, without human input or intervention.

Dysolve® is an autonomous AI system that can take a student from signup to program completion without human input or intervention

expert system

A computer system that performs at the level of a human expert or surpasses it.

Dysolve® AI expert system surpasses the ability of human experts in dyslexia intervention

intelligent system

A computer system that acts and responds intelligently, like a human or better than one

language processing

The brain's operation on language input (reception) and creation of language output (production), i.e., everything done by a person in using language. An example of a basic *language process* is detecting the sound /b/ in the word "big." Dysolve® operates on these language processes to identify and correct dyslexia.

Language processing is different from "*Natural Language Processing*," which is a subfield in computer science involved in using AI to simulate humans' verbal ability

language processing difficulties/deficits

Inefficiencies in certain language processes of a specific brain. Inefficiencies may be measured by accuracy and speed. The inefficiencies may hamper speaking, listening comprehension, reading, and writing. This is why people with dyslexia have language processing difficulties

Linguistics

The scientific study of natural language. Theoretical Linguistics views language as a massive complex of interlocking systems made up of hard-to-decipher codes.

Clinical Linguistics applies this knowledge to the study of language disorders

natural language

Language developed and acquired by humans in natural settings. This is different from artificial language used in computing

