Understanding Dyslexia and Working Memory

Dr Jason McGowan (Ed.D)

Literacy Care and The Child Development Network

Mater Hospital Brisbane

What is Dyslexia

Any ideas ?

Formal Definition

Dyslexia is a specific learning disability that is neurological in origin. It is characterized by difficulties with accurate and/or fluent word recognition 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 the growth of vocabulary and background knowledge

(International Dyslexia Association 2011)

Terminology

Learning Difficulty

Specific Learning Disability

Specific Reading Disorder

Literacy Disability

Reading and Spelling Disability

Terminology (Cont')

Delay

Implies a mild problem from which in time the child will recover without organized intervention. Often suggests a differential of about 12 months

CA = 800 RA = 700

Terminology (Cont')

Difficulty

Implies a moderate problem that may or may not be caused by non constitutional factors and from which the child will recover if tutored or simply applying greater effort or spending more time. May be 18 months behind.

Terminology (Cont')

Disability

Implies a severe, specific neuro-developmental problem that is constitutional to the child, separate from other difficulties and that will not recover unless treated with a designed and systematic intervention.

Over 24 months behind

Terminology (Cont')

Other Learning Disorders

- Dysgraphia (Cognitive Dysgraphia)
- Dyscalculia (Maths)
- Dyspraxia (Motor)

Dyslexia is a separate pathology from other learning disabilities including SLI and ADHD

Just a Few Facts

- Dyslexia is not a language based learning disability. It is specifically a phonological processing based learning disability. (Visual Factors?)
- It is the most common form of learning disability.
- Approximately 15-20% of the population has a learning disability
- The National Institutes of Health (US) report that 60% to 80% of those with learning disabilities have problems with reading and spelling skills.
- Individuals with dyslexia may not have difficulty with either receptive or expressive oral language skills

Some More Facts

- Dyslexia occurs in people of all backgrounds and intellectual levels. People who are very bright can be dyslexic. They are often capable or even gifted in areas that do not require strong language skills, such as art, computer science, design, drama, electronics, math, mechanics, music, physics, sales, and sports.

- Dyslexia runs in families; dyslexic parents are very likely to have children who are dyslexic.

- Some people are identified as dyslexic early in their lives, but for others, their dyslexia goes unidentified until they get older.

Facts Continued

- An extensive psychometric test battery given to 125 children with dyslexia and 125 control families showed a high percent of deficits in siblings and parents
- Genetic evidence indicates that 30% of reading deficit arises from heritable factors
- Inheritance has been suggested for dyslexia because of its occurrence in successive generations and in both males and females.

Facts Continued

- It appears most likely that dyslexia displays heterogeneity.

That is: Many attempts have been made to identify subtypes. Research supports three main groups.

Dysphonetic	or Phonological
Dyseidetic	or Orthographical
Mixed	or Orthophonological

This is the neurobehavioral approach we use to identify those patterns of dyslexia.

Recognizing The Signs

- The problems displayed by individuals with dyslexia involve difficulties in acquiring and using written language (oral language may be OK)
- It is a myth that dyslexic individuals “read backwards,” although spelling can look quite jumbled at times because students have trouble remembering letter symbols for sounds and forming memories for words.

Recognizing The Signs

Other problems experienced by dyslexics include the following:
(Don't Jump to Conclusions – Be Alert Not Alarmed)

- Learning to speak
- Learning letters and their sounds
- Organizing written and spoken language
- Memorizing number facts
- Reading quickly enough to comprehend
- Persisting with and comprehending longer reading assignments
- Spelling
- Learning a foreign language
- Correctly doing math operations

Diagnosis

Who?

How?

Who Can Diagnose

Informal

Based on ‘Concern’ and ‘Suspicion’

- Teachers
  - Communicate Concerns Early
  - Make Recommendations/Refer

Who Can Diagnose

Informal

Based on ‘Concern’ and ‘Suspicion’

- Parents

Confirm Concerns with Teacher and a Secondary Professional Source

Become an Educated Person

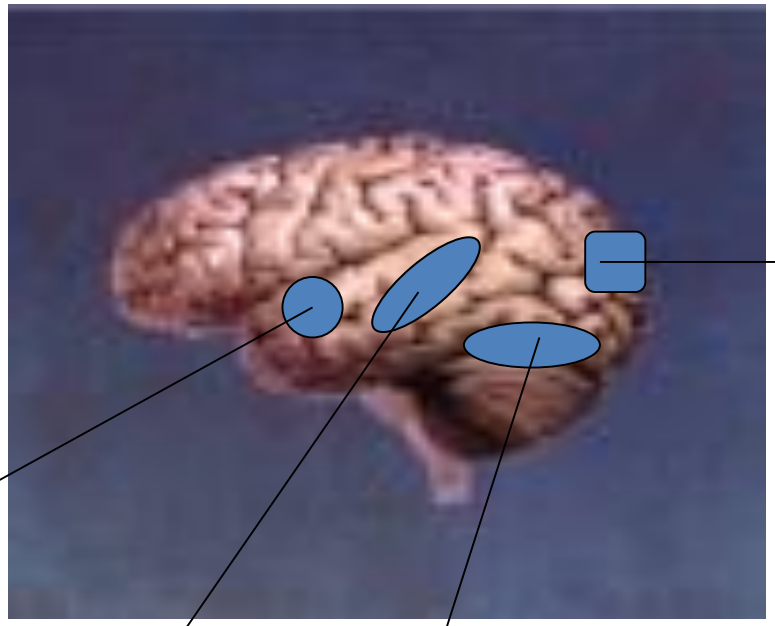
Who Can Diagnose

Formal

Based on ‘Evidence, Enquiry and Clinical Judgement’

- Brain Imagery
  - Neurological Signature
  - (f)MRI
  - Only Used for Research
  - Not in Australia

Neurobiological factors 30, 31, 59



Angular gyrus
(relay station)

Broca's area
(articulation mapping)

Wernicke's area
(phonological/letter-sound processing)

Ventral occipital-temporal cortex (word-form area)

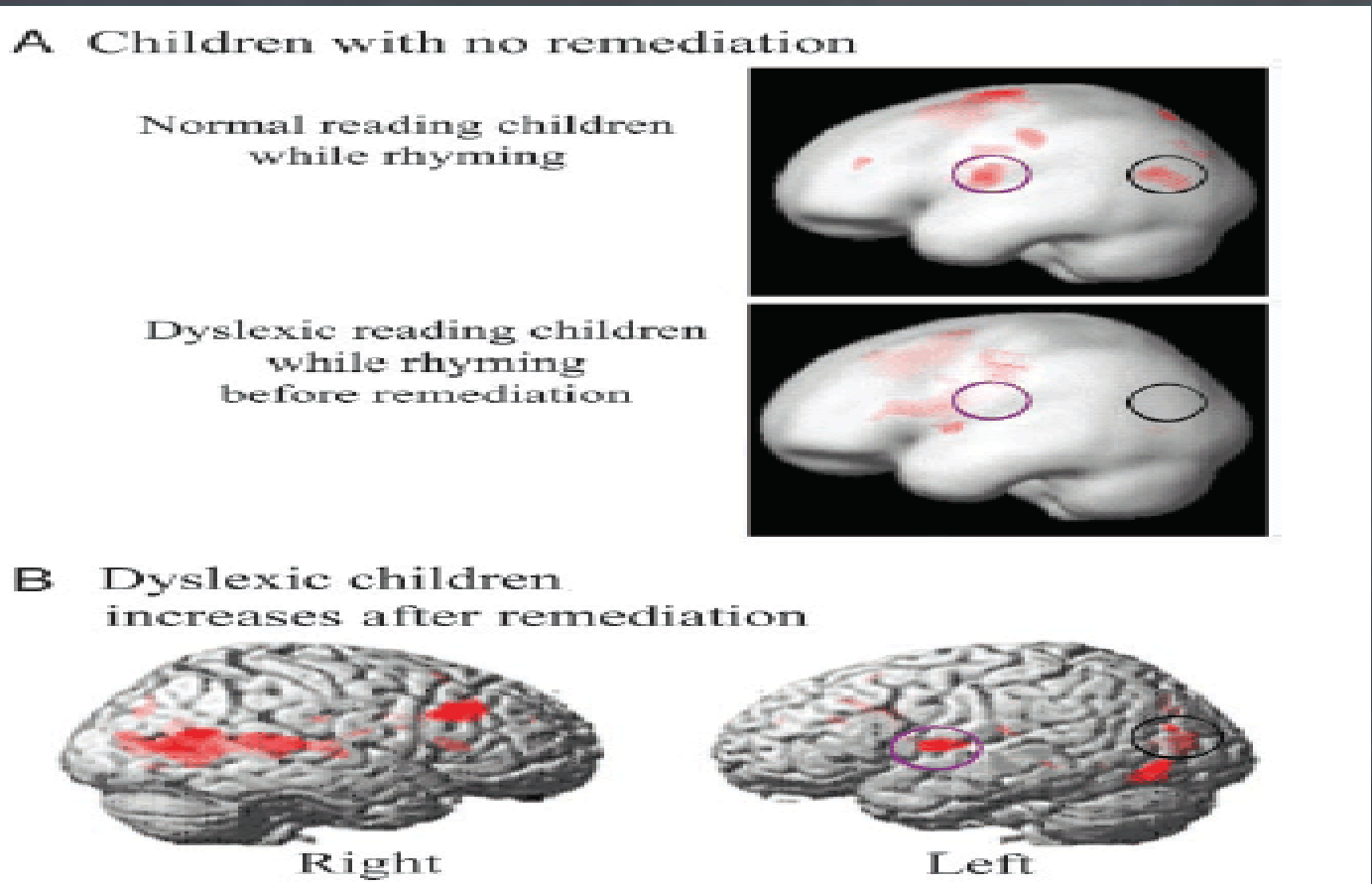


Fig. 1. Neural effects of remediation in children with developmental dyslexia. (*A*) Left hemisphere activations of control children and children with dyslexia are shown during rhyming (as compared with matching) letters ($P < 0.025$, 20-voxel threshold; ref. 12). (*B*) Brain areas that showed increased activity during phonological processing in the dyslexic group after remediation. Shown at $P < 0.01$, 20-voxel threshold. Black circles highlight left temporo-parietal region, which is disrupted in children with dyslexia and affected by remediation. Purple circles highlight the left frontal region that is active in control children and is affected by remediation in children with dyslexia.

Who Can Diagnose

Formal

Based on ‘Evidence, Enquiry and Clinical Judgement’

- Paediatrician
  - Uses IQ/Performance Model
  - Clinical skills
  - Legal Diagnosis

Who Can Diagnose

Formal

Based on ‘Evidence, Enquiry and Clinical Judgement’

- Ed. Psyche/Special Education
  - Cognitive Test
  - Academic and Scholastic Tests
  - Processing Tests
  - Clinical Skill

Who Can Diagnose

- In Australia ‘Legally’ only a medical specialist can Diagnose Learning Disability – For the Courts
- Current Industry Practice Prefers Clinical Educational Psychologists
- Educational Specialists diagnose for the purpose of informing instruction

Diagnosis

Who?

How?

How to Diagnose

Diagnostic Models

1. IQ : Performance Discrepancy Model
2. Phonological Processing and Orthographic Processing Deficit Model
3. “Sea of Strengths” Model
4. Reading Language Spectrum Model

How to Diagnose

IQ : Performance Discrepancy Model

Simply states that there is either a statistically or clinically significant disparity between the child's IQ (overall cognitive ability) and their scholastic performance

How to Diagnose

Phonological Processing and Orthographic Processing Deficit Model

Phonological Processing

- Refers to the use of phonological information, especially the sound structure of one's own oral language, in processing written language (i.e., reading, writing,) and oral language (listening, speaking) (Wagner and Torgesen 1987)

How to Diagnose

Phonological Processing

Three Composite Areas

- Phonological Awareness
- Phonological Memory
- Automatic Rapid Naming

How to Diagnose

Phonological Processing

Phonological Awareness

An Intuitive Yet Conscious Awareness of the Smallest Units of Sounds (Phonemes) That Make Up Spoken Words (McGowan 2003)

How to Diagnose

Phonological Processing

Phonological Memory

Refers to the coding of phonological information for temporary storage in working or short term memory

How to Diagnose

Phonological Processing

Automatic Rapid Naming

Refers to the rapid and efficient retrieval of phonological code. When reading we retrieve:

1. Phonemes Associated with Letters or Letter Pairs
2. Pronunciations of Common Word Segments
3. Pronunciation of Whole Words

How to Diagnose

Orthographic Processing

This refers to the visual processing aspect of reading. It does not refer to the eyes or the ocular system. Nor does it refer to Irlen Syndrome (Scotopic Sensitivity Syndrome)

How to Diagnose

Orthographic Processing

Orthographic Errors Fall into Four Categories:

-

How to Diagnose

(1) Orthographic Choice

This can be thought of in at least four ways.

1. An incorrect choice between vowel-consonant /e/ pattern and vowel-vowel pattern when both are phonologically acceptable. E.g.; ‘bote’ or ‘boat’, ‘pile’ as ‘pial’ or even ‘pyal’

2. A problem choosing between letter order. E.g.; ‘brithg’ or ‘brihgt’ or ‘brigth’ or even ‘bright’

How to Diagnose

(1) Orthographic Choice Continued

3. Correctly spelling homonyms, homophones and homographs relative to their meaning

4. A difficulty choosing the sound of ’k’ at the end of a monosyllabic word. The choices are /ke/ as in like, /ck/ as in lick and /k/ as in look.

How to Diagnose

(2) ***Semantic (and sometimes asemantic) Whole Word Substitutions***

- This means that the child reads a word that is visually similar with or without the same meaning, e.g.; ‘taking’ for ‘talking’ or a word that is visually dissimilar but may have a similar meaning such as ‘eight’ for ‘nine’.

The boy has *eight* books. The boy has *nine* books

How to Diagnose

(3) Perceptual Analysis

- Perceptual Analysis refers to single letter or whole word reversals.

p/b/d/q/

w/m

u/n

saw/was

How to Diagnose

(4) Eidetic Memory

- Eidetic Memory is literally, 'vivid imprint'. It refers to how readily a child can store and recall the correct whole form of a word from long term memory. It is particularly valid for phonologically implausible and or orthographically unique words like, *laugh*, *said*, *yacht, tongue* etc.

How to Diagnose

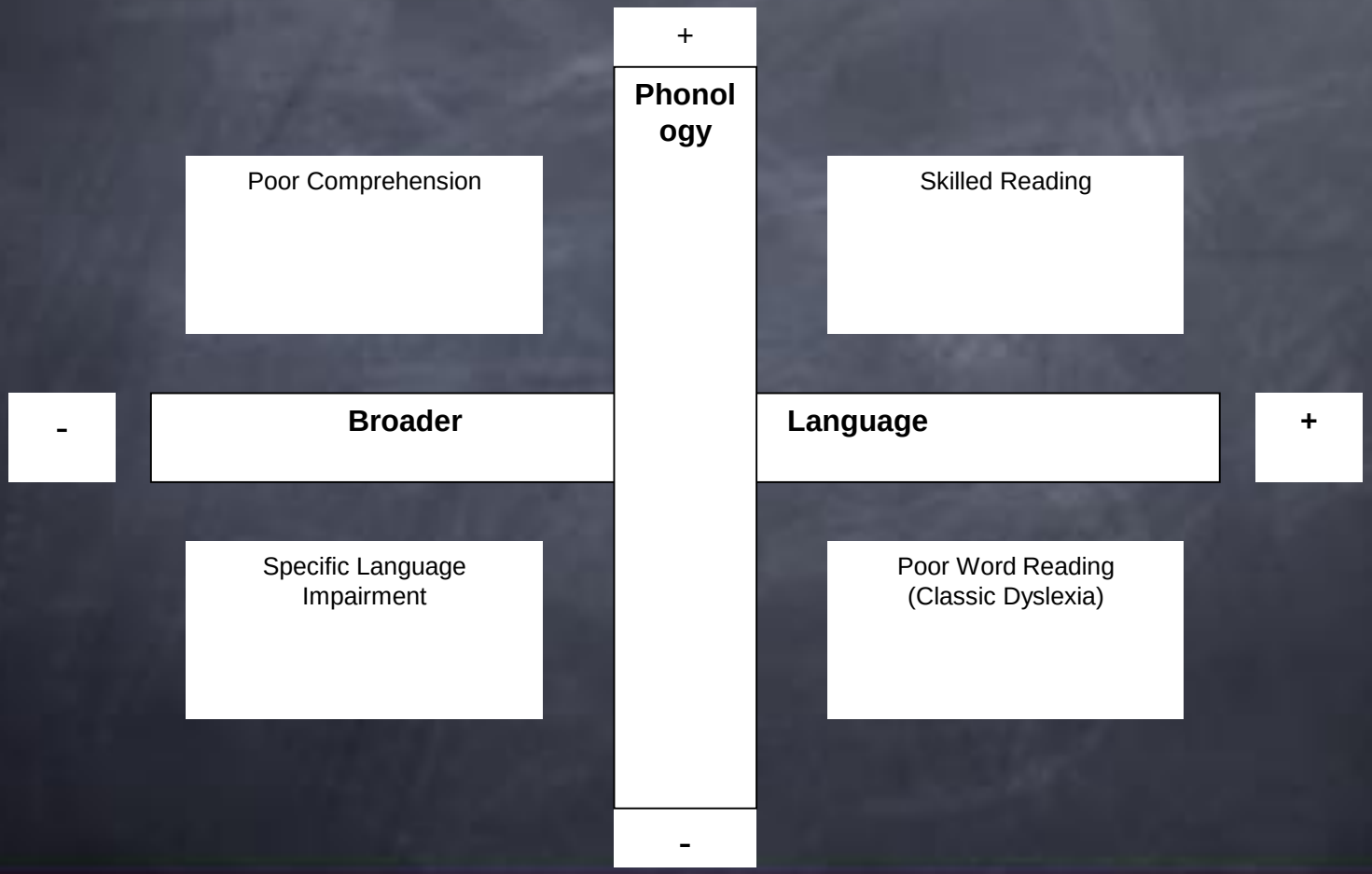
"Sea of Strengths" Model

Certain Strengths are Behaviourally Associated with Dyslexia

Construction	Art
Music	I.T
Drama	Sport
Maths	Drawing
Oratory	Perception and Intuition
Design	Story Telling

How to Diagnose

Reading Language Model (Spectrum)



How to Diagnose

Collecting Evidence and Making Decisions

- Background and History
- Tests
- Clinical Decision

How to Diagnose

Collecting Evidence and Making Decisions

Background and History

- Educational
- Developmental/Family
- Medical
- Psychological

How to Diagnose

Collecting Evidence and Making Decisions

Tests

- Diagnostic Tests
- Survey Tests
- Diagnostic Achievement Tests ✓

How to Diagnose

Collecting Evidence and Making Decisions

Clinical Decision

Standardized numerical data should always be interpreted in the context of the clinical setting in which it was collected and should be generally interpreted only by the person who collected the data. Isolated test scores that are provided to non testing professionals are therefore usually of minimal value

How to Diagnose

Collecting Evidence and Making Decisions

Clinical Decision

Disorders of learning are now considered to be a strictly clinical diagnosis. This means that the patient's history, clinical performance and the practitioner's clinical skills are the essential components that contribute to the conclusions drawn. The type of tests used and the standardized information that such tests provide are of less value

How to Diagnose

Collecting Evidence and Making Decisions

Clinical Decision

The purpose of engaging a professional is to obtain that person's professional diagnostic and prognostic opinion. It is unusual and even dangerous for another professional to draw conclusions based on their interpretation of isolated numerical data gathered during a clinical process to which they have not been privy

How to Diagnose

Collecting Evidence and Making Decisions

Clinical Decision

However, it is vital that the testing professional's interpretations and conclusions accurately reflect the overall profile that that individual scores help to make up.

Treatment And Management

Treatment and Management

Who?

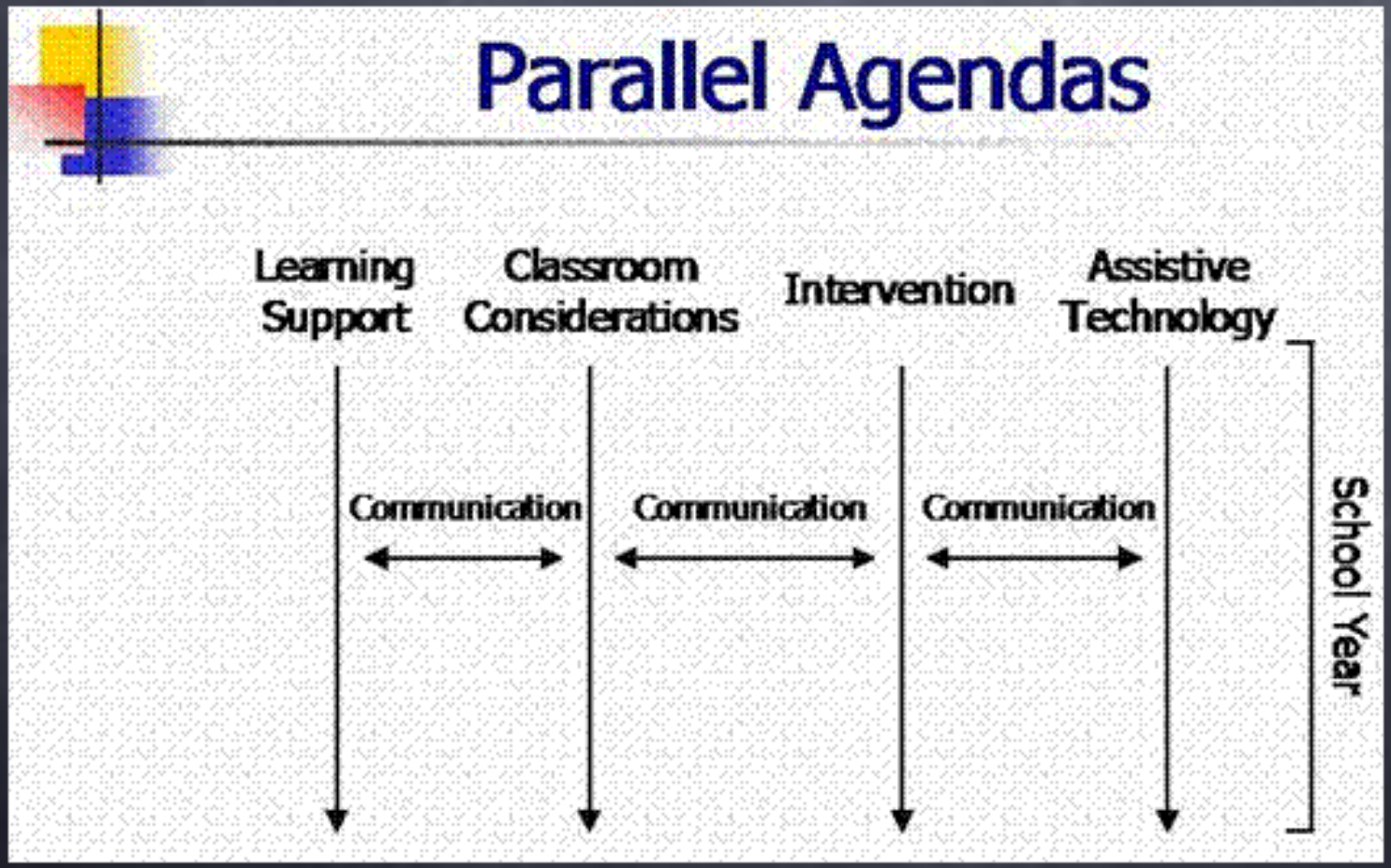
How?

Treatment and Management

Who?

- Teachers (CRT, LST) – Whole School Approach
- Parents
- Specialist Intervention (Often Private)
- Other Specialist (Medical and Allied Health, A.T)

Treatment and Management



Treatment and Management

Special Considerations

The basic and essential premise of Special Consideration is the concept of **'Empathetic Insight'**. The hope is that a proper level of insight into the child's difficulty will lead to an empathetic based policy that governs how the child will be managed in the classroom. It is a way of painting a series of 'do's' and 'don'ts' around the child in order to give him/her a profitable school day academically and a safe day in relation to mental health.

Treatment and Management

6 Key Areas of Special Consideration should be investigated:

"Level The Academic Playing Field"

"By-Pass The Problem"

"Navigate Not Remediate"

- Academic and Scholastic (This further breaks down to Classroom work and Homework)
- Tests and Reporting
- Mental Health
- Learning Support
- Home Agendas
- Peer Group

Treatment and Management

How

Treatment and Management

Intervention

Two Broad Approaches

Prefabricated (Pull of the Shelf) (On the Market) Programs

(Barton, Hickey, Wilson, Alpha and Omega, The Sound Way, Reading Horizons, Lindamood , Greatleaps, RAVE-O (etc)

Treatment and Management

Intervention

Two Broad Approaches

Eclectic

Individualised (customized) programs that progress on the principle of Response to Intervention (RTI)

Treatment and Management

Prefabricated Programs

Could be Administered by Teachers or Schools

The following points are a guide when considering which program is best

- ***Cost***
  - This includes cost of resources to be delivered to the school. Cost of ongoing updates. Teacher training costs.
- ***Teacher Training Time***
- ***Lesson Preparation Time***
- ***Accessible Human Support for Technical and Pedagogical Troubleshooting***
- ***Suitability for Students Relative to Age and Degree of Problem***
- ***Suitability to Wider Group***
- ***Potential Use in Future Years***

Treatment and Management

Eclectic

Individualised (customized) programs that progress on the principle of Response to Intervention (RTI)

1. Schools use RTI to establish that a child has a legitimate disability (Dyslexia) and not merely a delay or difficulty (see slides 5 and 6)

In Other Words Commence Intervention Not Testing

Treatment and Management

Eclectic

2. Ed. Specialists use it (RTI) as a measuring tool that not only provides feedback on student progress but helps inform instruction on an ongoing basis

Remember we teach children NOT programs

Treatment and Management

Eight Important Principles

- 1 Multisensory
- 2 Alphabetic and Graphophonemic
- 3 Direct, Explicit, Repetitive, Drill-like Instruction
- 4 One on One
- 5 High Intensity, High Frequency, Moderate Duration
- 6 Systematic and Cumulative
- 7 Goal Driven
- 8 Response to Intervention

Treatment and Management

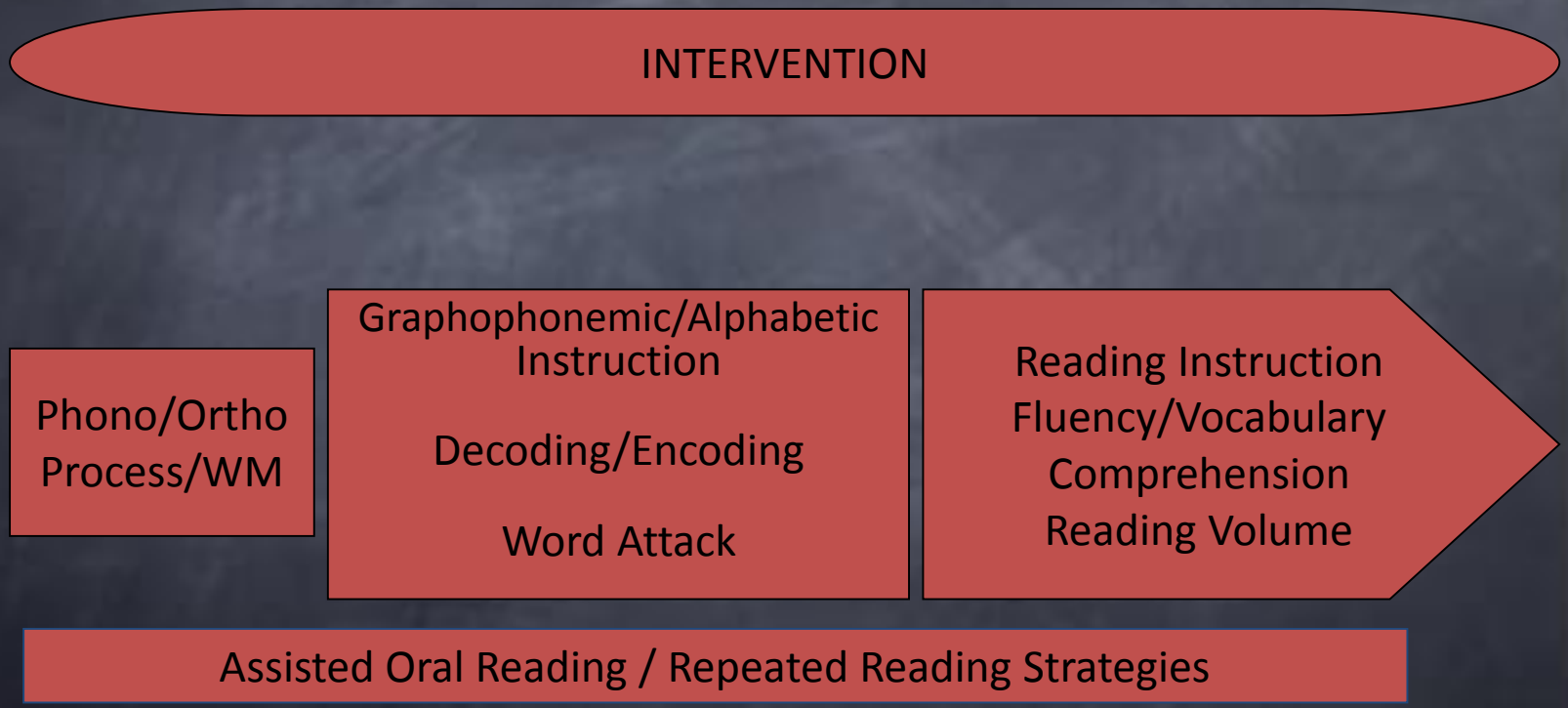
Three Treatment Models

Multi Stage Model

Multi Plan Model

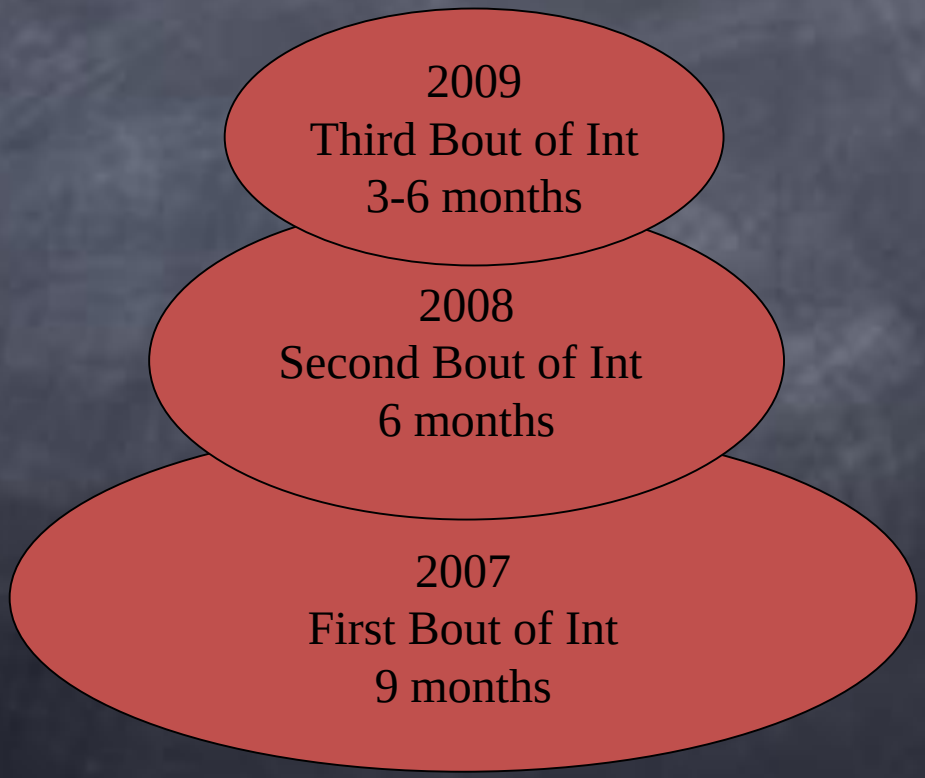
Multi Test Model

Multi-Stage Model

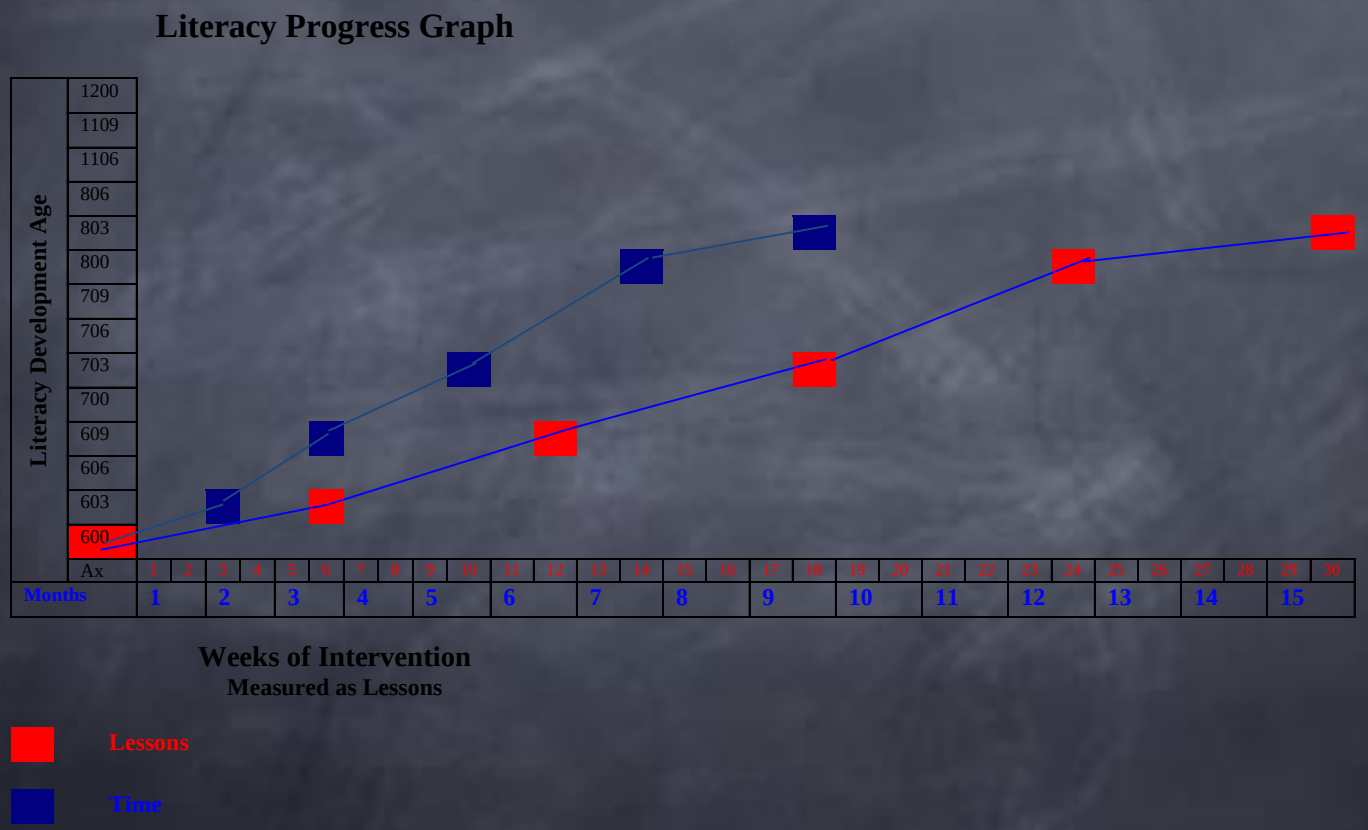


Multi-Plan Model

Plans or ‘Bouts’ of Intervention



Multi-Test Model



Multi-Test Model

Post Intervention Test

Current literature suggest that students who have engaged in intensive and systematic intervention should have a ‘lay-off’ of about 3 months. After this a review should be done to determine that their improvement is continuing to advance at the same rate without intervention as it did under intervention.

Working Memory

- What is it? TERMINOLOGY
- Why is it Important? TROUBLE
- How to Manage? TEACHING

Working Memory - Terminology

What is it?

Working Memory - Terminology

Memory

How many Terms Are There?

Working Memory - Terminology

How Does Your List Compare?

- Auditory
- Episodic
- Explicit
- Implicit
- Long
- Rote
- Semantic
- Sensory

Short

State Dependent

Visual

Eidetic

Working

Image

Photographic

Really Bad

Working Memory - Terminology

The Memory Process

- Memory is a highly complex process involving multiple components working simultaneously
- Our description of isolated components is only a representation because in reality our brains process information in an integrated fashion

Working Memory - Terminology

The Memory Process … Cont'd

- Everything begins as sensory input from our environment. Using our sensory systems, we see, taste, hear, or feel a sensation or stimuli

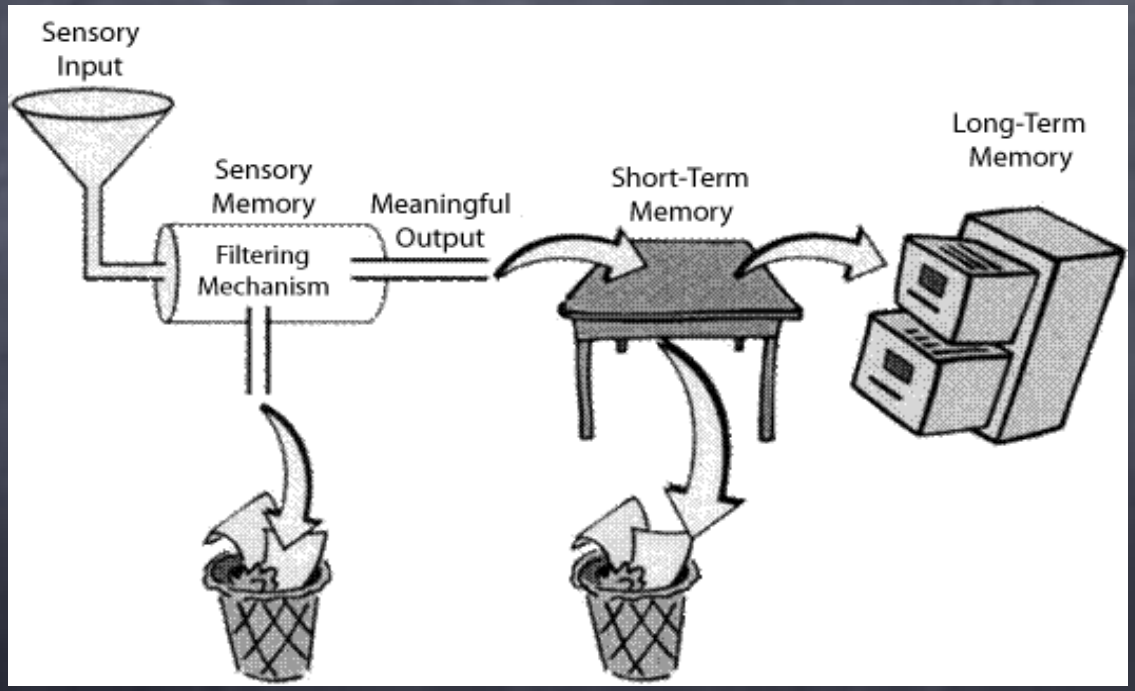
- We have a mechanism to filter out and discard irrelevant or unnecessary data, such as the feel of the carpet as we walk or the sound of the air conditioner

Working Memory - Terminology

The Memory Process … Cont'd

- This same filtering mechanism organizes relevant data into meaningful patterns.
- In figure 1, the funnel and the filter represent these processes: sensory input and sensory (Working) memory.

Memory Process Schema



Working Memory - Terminology

Three Main Terms

Long

Short

Working

Working Memory - Terminology

Long Term Memory

- Permanent Storehouse
- A system for permanently storing, managing, and retrieving information for later and ongoing use. Items of information stored as long-term memory may be available for a lifetime.
- Information which has been registered, encoded, rehearsed, and stored for future retrieval; Material and information retained in LTM underlies cognitive abilities.

Working Memory - Terminology

Short Term Memory

- Temporary Storehouse
- Small amounts of information in mind in an active, readily available state for a short period of time
- Not stored because of Rehearsal or Association
- Only for seconds or small amount of minutes. Estimates of short- term memory capacity limits vary from about 4 to about 9 items

Working Memory - Terminology

Working Memory

- Manipulation of Presently Active Information
- Receive and Use or Receive and Lose (What are my senses telling me?)
- A Form of Multi-Tasking Without Prioritizing

Working Memory - Terminology

Working Memory –5 Purposes

Can you relate these to daily learning situations

1. Holding an Idea in mind while developing, elaborating, clarifying or using it

2. Recalling information from long term memory while holding related information in short term memory

Working Memory - Terminology

Working Memory –5 Purposes ... Cont'd

3. Holding the components of a task together in memory while completing the task

4. Keeping a series of pieces of information together so that they remain meaningful

Working Memory - Terminology

Working Memory –5 Purposes ... Cont'd

5.Holding a long term plan while thinking about a short term need

Working Memory - Terminology

Sub Systems

- 1. Phonological Loop
- 2. Visual-Spatial Sketchpad
- 3. Central Executive

Working Memory - Terminology

- Phonological memory refers to coding information phonologically in working memory for temporary storage in short-term memory. When you attempt to remember a phone number you have looked up, as you make your way to the phone, you are storing the number temporarily in working memory. You probably do so not by storing a visual representation of the sequence of digits (although you may be able to do this if you try), but rather by storing a phonological representation of the sounds of the digit names.

Phonological Loop ...Cont'd

- It is the part of memory most involved in storing, phonological information. The phonological loop provides a brief, verbatim storage of auditory information (Baddeley, 1986, 1992; Torgesen, 1996). The phonological loop consists of two parts working together. The first is a phonological store, which can be thought of as a tape recording loop that retains the most recent 2 seconds worth of auditory information that has been recorded. The second is an articulatory control process that provides input to the phonological loop initially and also can refresh information already in the loop so that it can be stored for longer than 2 seconds.

Working Memory - Terminology

Visual Spatial Sketchpad

A parallel system akin to an artist's sketchbook for stimuli that cannot be verbalized, such as spatial information.

Working Memory - Terminology

Central Executive

A system responsible for supervisory attentional control and cognitive processing. This last system, though poorly defined, is most alluring because it represents the very stuff of thought.

Working Memory - Trouble

Why is it Important?

Working Memory - Trouble

Students who struggled to learn academically will almost certainly have working memory difficulties

Problems are best defined in terms of **Capacity** and **Time**

Working Memory - Trouble

The Theories of Capacity and Time Decay

Working Memory problems can be divided into:

1. **Capacity** – The Neurological Scratchpad – How much information can I cope with…

2. **Time** – and For how long (time) can I cope with information

Working Memory - Trouble

Capacity Decay

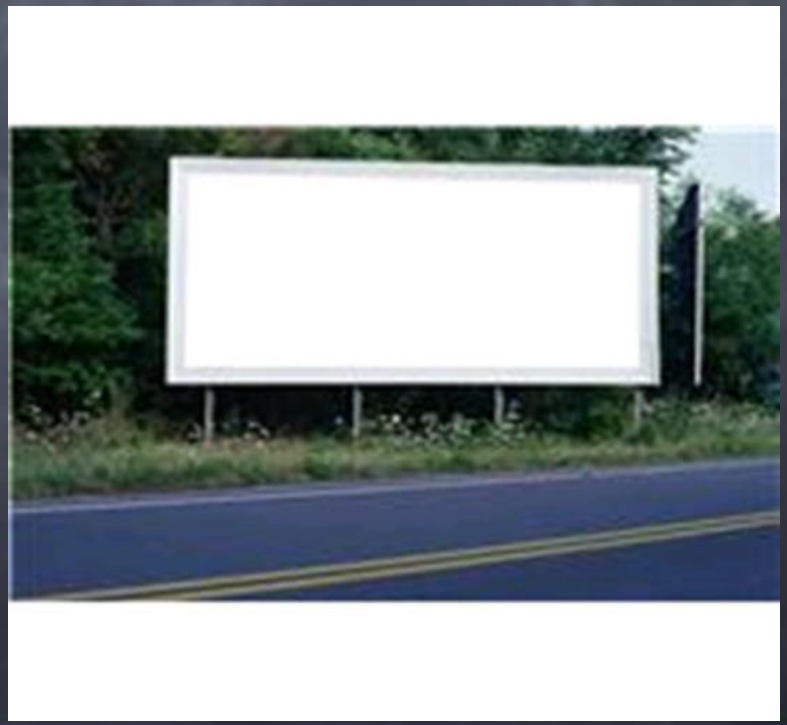
Neurological Scratchpad

- too much information (auditory, visual – overall sensory overload)

Working Memory - Trouble

The Scratchpad Analogy

How Big is Your Mental Scratchpad?



Working Memory - Trouble

Time Decay

Time

Individual pieces of Information
are presented too far apart

Example

- Classroom (Task) Instructions
- Sounds Within a Word – Resynthesis Problems

Working Memory – Teaching

How To Manage

Working Memory - Teaching

Working Memory Can be Taught/Improved

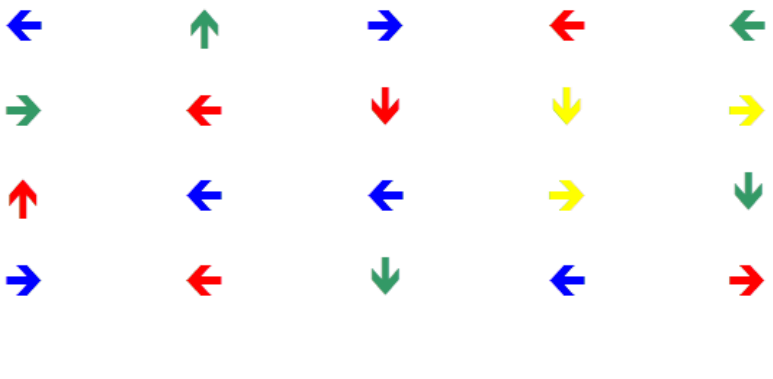
Working Memory - Teaching Reading

- Phonological Awareness
- Phonological Memory
- Automatic Rapid Naming

Working Memory - Teaching Strategies (1:1)

- Sequential Repetition (Ch 2, 5 Strategies DVD)
- 3SW (Ch 4, 5 Strategies DVD)
- Tactile Elision Drill (Ch 5, 5 Strategies DVD)

Strategies Cont'
Coloured Arrows



green	blue	red	yellow	black
blue	black	yellow	red	blue
yellow	green	yellow	red	red

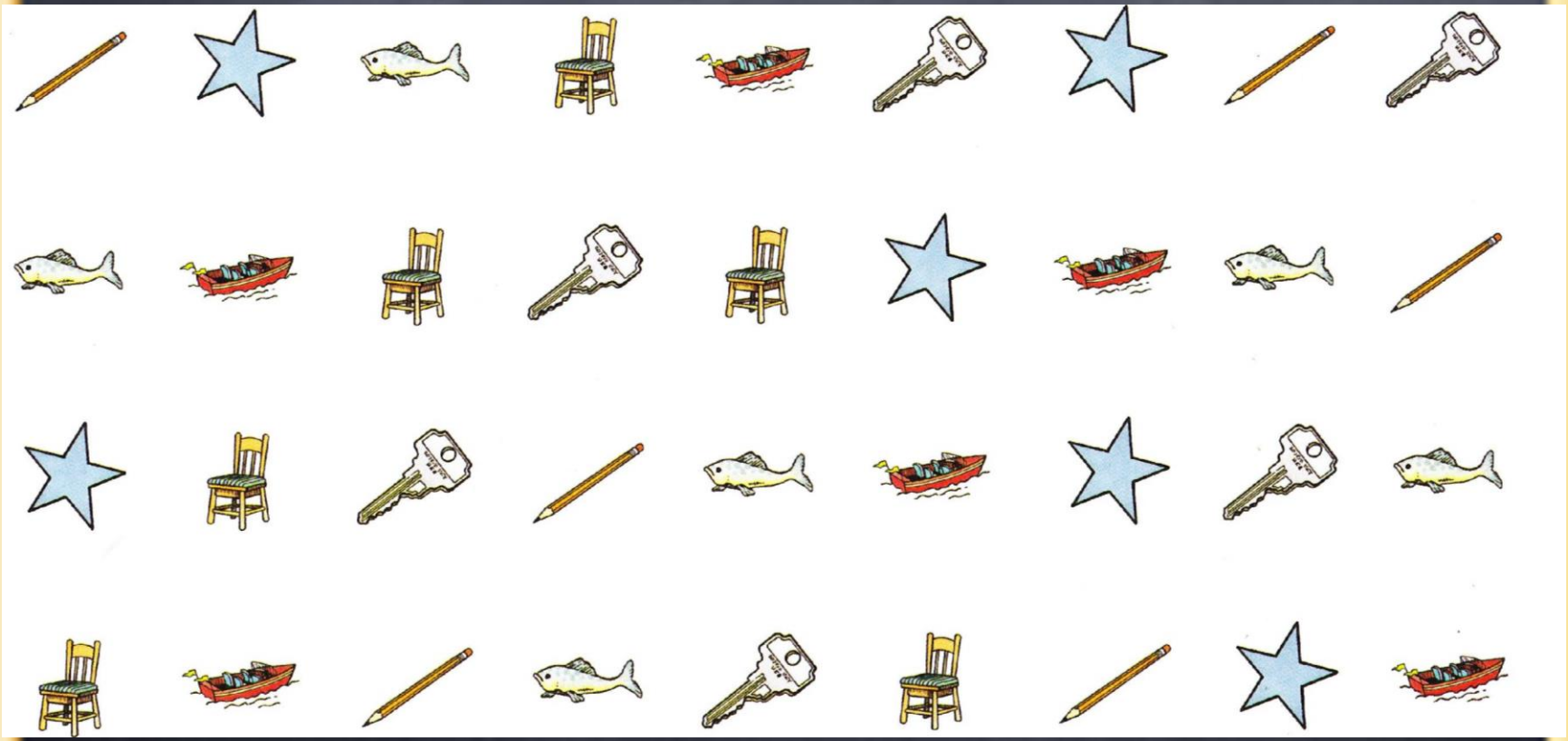
Automatic Rapid Digit Naming

2	9	4	6	3	8
4	9	6	8	3	2
9	2	8	3	9	3
3	4	2	4	9	8
2	8	9	2	8	3
4	6	3	9	2	9

Automatic Rapid Letter Naming

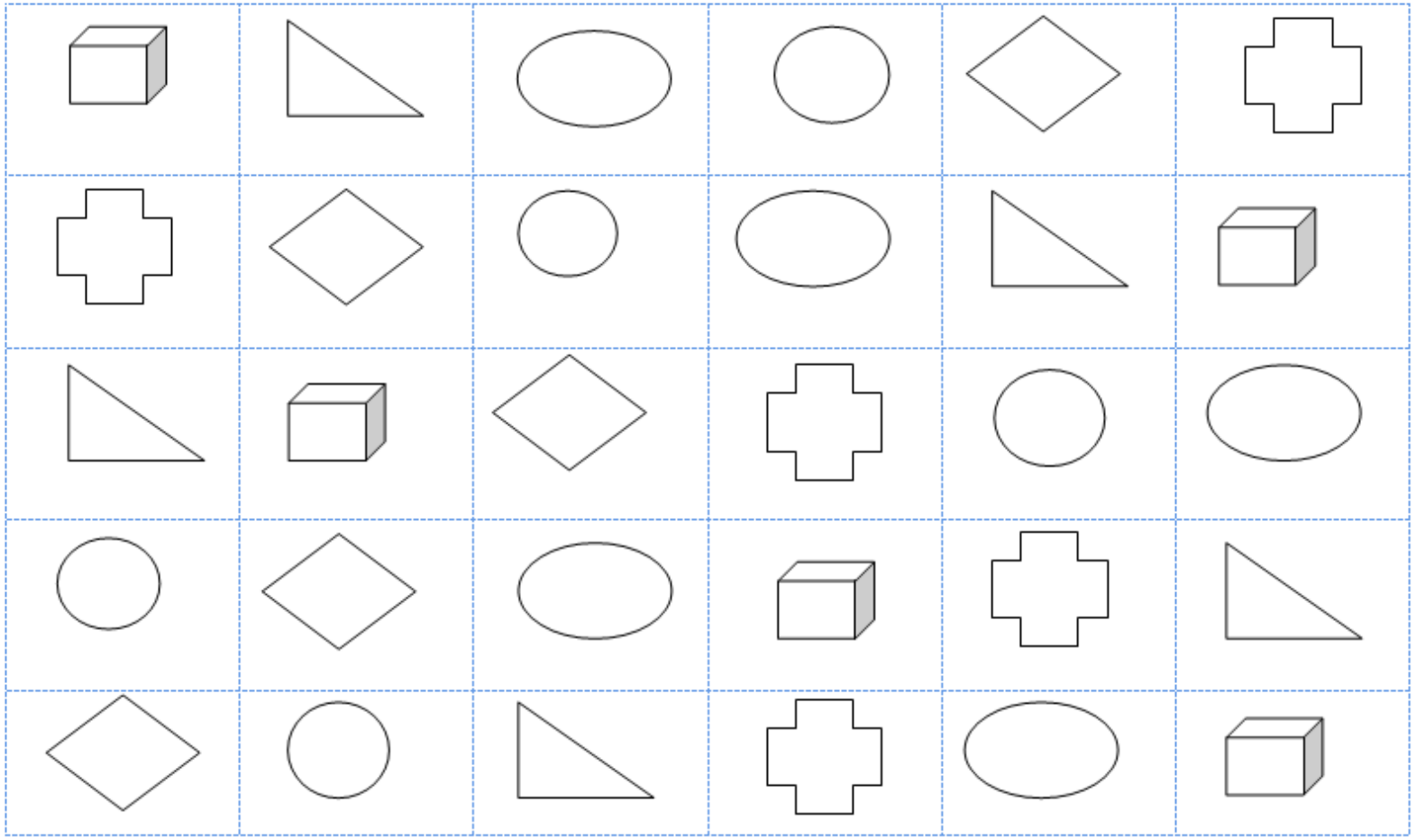
a	d	e	c	g	t
d	e	g	t	d	c
c	t	d	e	t	g
g	a	e	a	c	t
t	g	c	e	d	a
e	t	a	c	e	d

Automatic Rapid Object Naming



Automatic Rapid Shape Naming

Automatic Rapid Shape Naming



Automatic Rapid Naming Words

of	for	from	off	of	for
of	from	off	of	for	from
off	for	of	for	from	off
from	of	for	from	off	of
for	off	from	of	for	from
of	for	from	off	of	from

Automatic Rapid Naming HFW

a	I	at	as	do	go
he	in	is	it	if	Mr
my	no	me	of	oh!	on
so	up	we	to	be	and
all	ask	are	can	car	big
but	dad	for	day	did	get

Graphophonemic Rhythm
60 bpm

3 in 3	4 in 5	4 in 6	5 in 7	7 in 7
W L R	M / D H N	X G / F / U	Q / E T Y / G	W P N F Y H R
P G K	K O S / L	R / L U / H	A / K / V R C	
D J B	A B / F X	O / P / K G	F D / S / W L	

Blending Words and Non Words

What word do these sounds make?

Mum – ble	Mumble	Ch – a – b - o	chabo
scr – a - p	Scrap	c – l – igh - t	clight
s – p – l – a - sh	Splash	b – a – s - p	basp

Segmenting Words and Non Words

Sound out these words one sound at a time

feast	f – ee – s - t	shap	sh – a – p
loaves	l – o – v – z	biffoo	b – i – f – oo
later	l – ay – t – a	mivep	m – i – v – e - p
baboon	b – a – b – oo - n	cobed	k – o – b – d

Phoneme Reversal

- Say tã (as in tap). Now say tã backwards
- Say oot (as in boot). Now say oot backwards.
- Say noops (as in loops). Now say nööps backwards
- Say zmitmus (as in mite-must). Now say zmitmus backwards.

Working Memory - Teaching

COGMED

cogmed.com cd.net.au

Cogmed is a sophisticated, evidenced based computer generated program for the specific development of WM

Working Memory - Teaching COGMED

COGMED Outcomes Include: (*cogmed.com/benefits)*

- Improved Executive Functioning
- Higher Levels of maturity
- Sustained Attention
- Better Acute Concentration
- Greater ‘Availability’ for Learning

Working Memory - Teaching COGMED

The COGMED Program measures improvement through an index system. An improvement to around 23 on the index equals approximately 1.5 standard deviations away from the norm.

Working Memory - Teaching COGMED

Functionally The COGMED Program is based on the principles of Intensity, Frequency and Duration.

The best results come when the child completes 25 sessions in a 5 week period. (That is, 5 X 40 minute sessions each week for 5 weeks)

Working Memory - Teaching

- **WISC IV** – Cognitive Only
- **CTOPP** – Phonological
- **PACE Test** – Coloured Arrows Segment
- Working Memory Rating Scale
- Working Memory Test Batteries

Remember

- Reading is a taught skill
- Working memory Can be trained
- The single greatest factor in the recovery of a child's literacy is the quality of the human instruction
- Teach children NOT programs
- Empathetic insight is as necessary as excellent Instruction

Questions

What can the teacher/parent do to help the children with working memory in the classroom?

Answer

- Directions need to be short and few in number at any one time whether written or oral (time/capacity)
- Provision of more time in almost all tasks

Answers

- Work out if information is better presented visually or auditory
- Be more explicit-one teaching point at a time

Answers

- Be prepared to be very repetitive
- Present whole concept often while moving through each step

Questions

What are some good reading/writing programs that schools can incorporate into their school reading programs to assist students with learning difficulties like Dyslexia?

Questions

What are good reading schemes parents or schools can use?

What types of literacy programs/interventions should be placed in prep/yr 1 -2 to support students with literacy disabilities?

Answers

Whole School Approach

RTI 3 Tier Reading Model – Texas University

Tier I: Core classroom reading instruction that all students receive, assessment of student progress three times per year, and ongoing professional development

Answers

Whole School Approach

Tier II: Intervention (additional reading instruction) and

frequent progress monitoring (e.g., every 2 weeks)

that struggling readers receive

Answers

Whole School Approach

Tier III: More intensive intervention and frequent progress monitoring (e.g., every 2 weeks) that students with extreme reading difficulties receive after not making

adequate progress in Tiers I and II

Answers

Whole School Approach is based on

A Framework not a program(s)

Tier 3 students will still need an intervention

Answers

- Barton
- Hickey
- Wilson
- Alpha and Omega
- The Sound Way
- Reading Horizons
- Lindamood
- Greatleaps
- RAVE-O
- Jolly phonics
- Letterland
- Orton Gillingham
- Reading First
- Seeing Stars
- Road to the Code
- Visualizing/Verbalising

Answers

Repeated Reading

- Model
- Choral
- Individual
- Cumulative

- Assistive Oral Reading
- 8 Step Reading and Spelling Technique for Learning High Frequency Words

Questions

The new curriculum places high literacy demands on students. What are the signs teachers should be looking for if students are unable to cope with the higher level of demand?

Answer

Signs

- Problem with rhyme and rime
- Problem learning the alphabet
- Letter recognition
- Sound matching and ID problems
- Slow sight word learning

Answer

Signs

- Synthesis problems
- Dysfluency, intonation, inflection, expression

Answer

signs

- Conceptual problems – difficulty understanding the link between spoken and written language
- Low written output

Questions

What are some types of assessments/observations should the teacher be doing/looking out for?

Answer

- Single word test
- Single sentence test
- Short paragraph test
- Whole word spelling test
- Encoding of patterns – CV, VC, CCV, VCC

Questions

What types of activities will help students with weaknesses in visual and auditory memory?

Questions

- Cogmed
- Learning RX – one on one and group activities