Learning Problem
(with focus on ADHD & LD)

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22 กรกฎาคม 2554

ADHD: Prevalence and Demographics

- Overall prevalence 3% to 10% in school-aged children
- Diagnosed in boys 3 to 4 times more often than in girls
- Persists in 30% to 50% of patients into adolescence and adulthood (symptom profile may change)

Symptom Groups

Inattention	Hyperactivity	Impulsivity
Does not attend	Fidgets	Talks excessively†
Fails to finish tasks	Leaves seat in class	Blurts out answers
Can't organise	Runs/climbs excessively	Cannot await turn
Avoids sustained effort	Cannot play/work quietly	Interrupts or intrudes on others
Loses things, 'forgetful'	Always 'on the go'	(Total 3 items)
Easily distracted	Talks excessively*	
(Total 9 items)	(Total 6 items)	

*'Talks excessively' is one of the DSM-IV criteria for hyperactivity but not one of the ICD-10 criteria

† 'Talks excessively' is one of the ICD-10 criteria for impulsiveness but not one of the DSM-IV criteria

DSM-IV – Diagnostic and Statistical Manual, 4th Edition (American Psychiatric Association, 1994).
ICD-10 – International Classification of Diseases, 10th Edition (World Health Organisation, 1993).

DSM-IV diagnostic criteria for ADHD

- A. either (1) or (2)
  - (1) ≥ 6 symptoms of inattention, ≥ 6 mo.
  - (2) ≥ 6 symptoms of hyperactivity-impulsivity, ≥ 6 months
- B. some symptoms that caused impairment were present before age 7 years.
- C. symptoms are present in ≥ 2 settings
- D. clinically impairment in social, academic or occupational functioning.
- E. symptoms do not occur exclusively during the course of PDD, schizophrenia, etc.

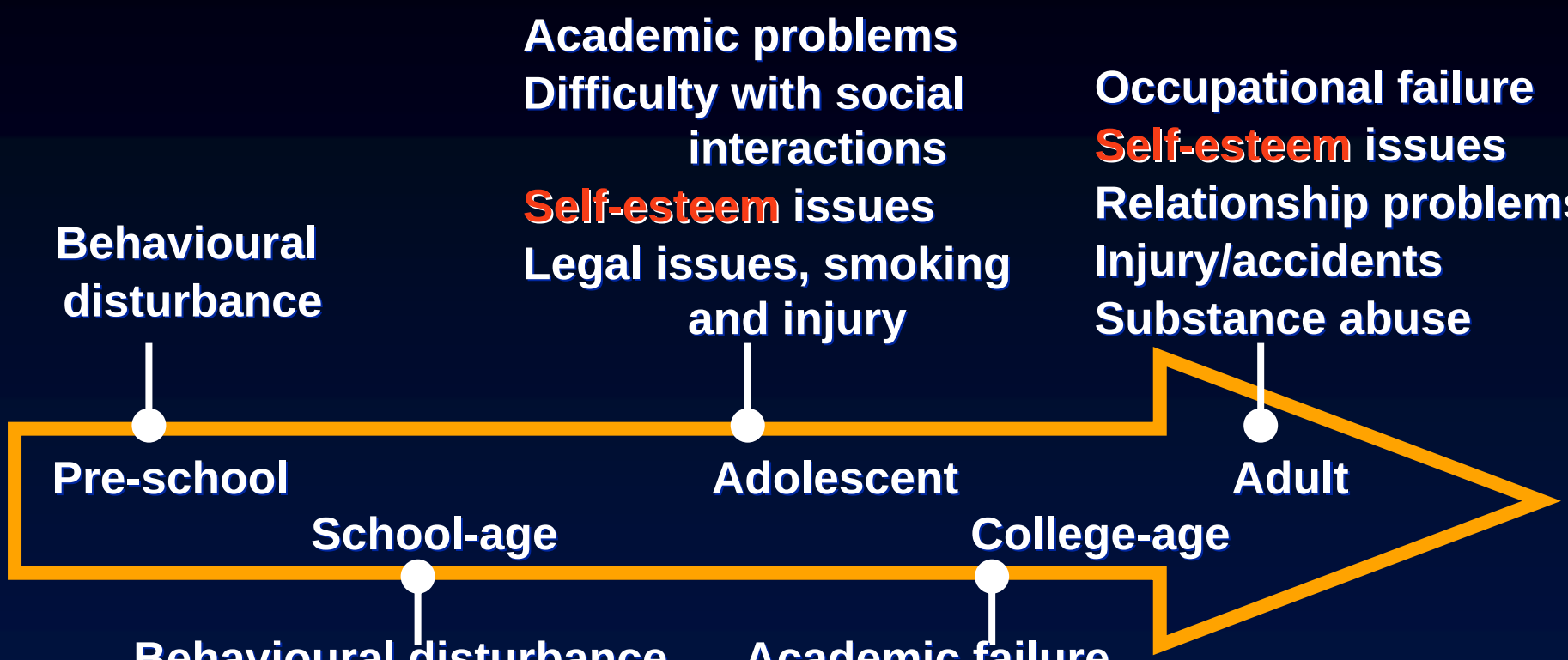
Differential diagnosis of ADHD

- Difficult temperament
- Poor discipline
- PDD/Autism
- Sensory impairment
- Some medical conditions e.g. OSA
- Major affective disorder
- Reaction to stress (e.g. post traumatic stress disorder)

Impact of ADHD on individual and family

- **Individual**
  - Poor academic achievement
  - Social impairment
  - Low occupational status
  - Increased risk of substance abuse
  - Increased risk of injury
- **Family**
  - Increased stress levels
  - Increased depression
  - Increased marital discord
  - Changed work status

Impact of ADHD



Effects of ADHD on behavioural and development

- Problems with productivity and motivation
- Reduced ability to express ideas and emotions
- Decreased working memory
- Problems with social interaction
- Impairments in speech
- Problems with verbal reasoning

Etiological factors of ADHD

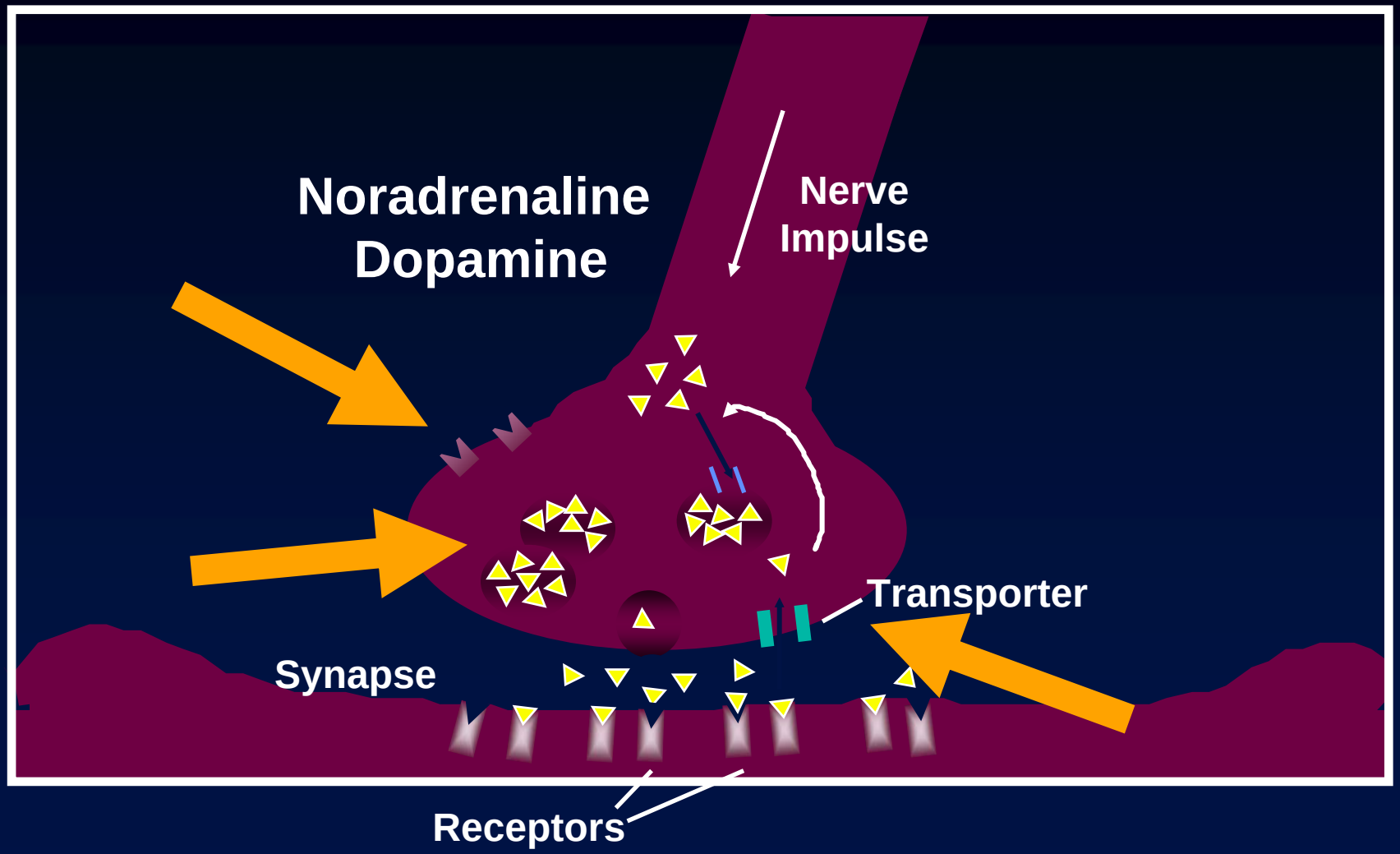
1) **Dysfunction of the brain**
2) **Genetic factors**
3) **Neurodevelopmental hypotheses**
   - **perinatal hypoxia**
   - **premature birth**
4) **Environmental factors (limited supporting data)**
   - **severe early deprivation**
   - **family psychosocial adversity (e.g., poverty)**
   - **brain injury that occur in utero**
   - **maternal smoking during pregnancy**

Nature Rew Neuroscience. 2003; 3:617-28

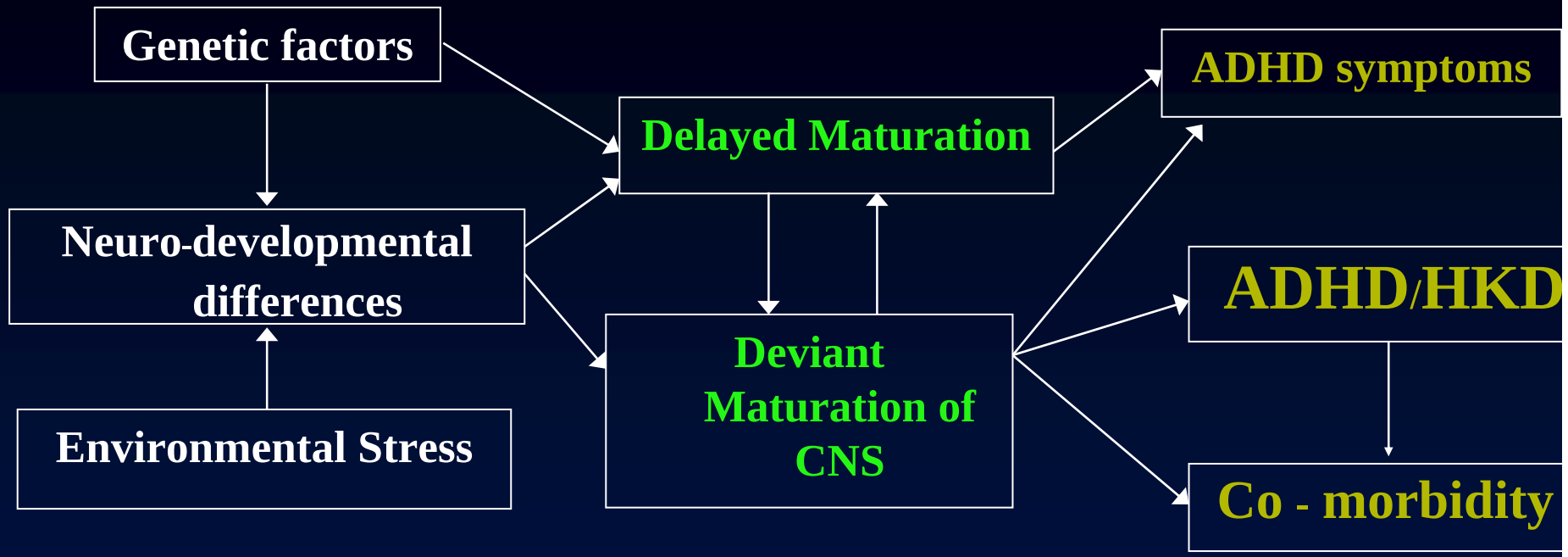
ADHD and the brain

- Dysfunction in catecholamine metabolism and neurotransmission in pre-frontal cortex and associated sub-cortical structures
- Dopamine, adrenaline, noradrenaline important for executive control, including motivation and attention
- Serotonin may affect dopamine transmission, and the expression of ADHD

Neurochemical & pathophysiology of ADHD

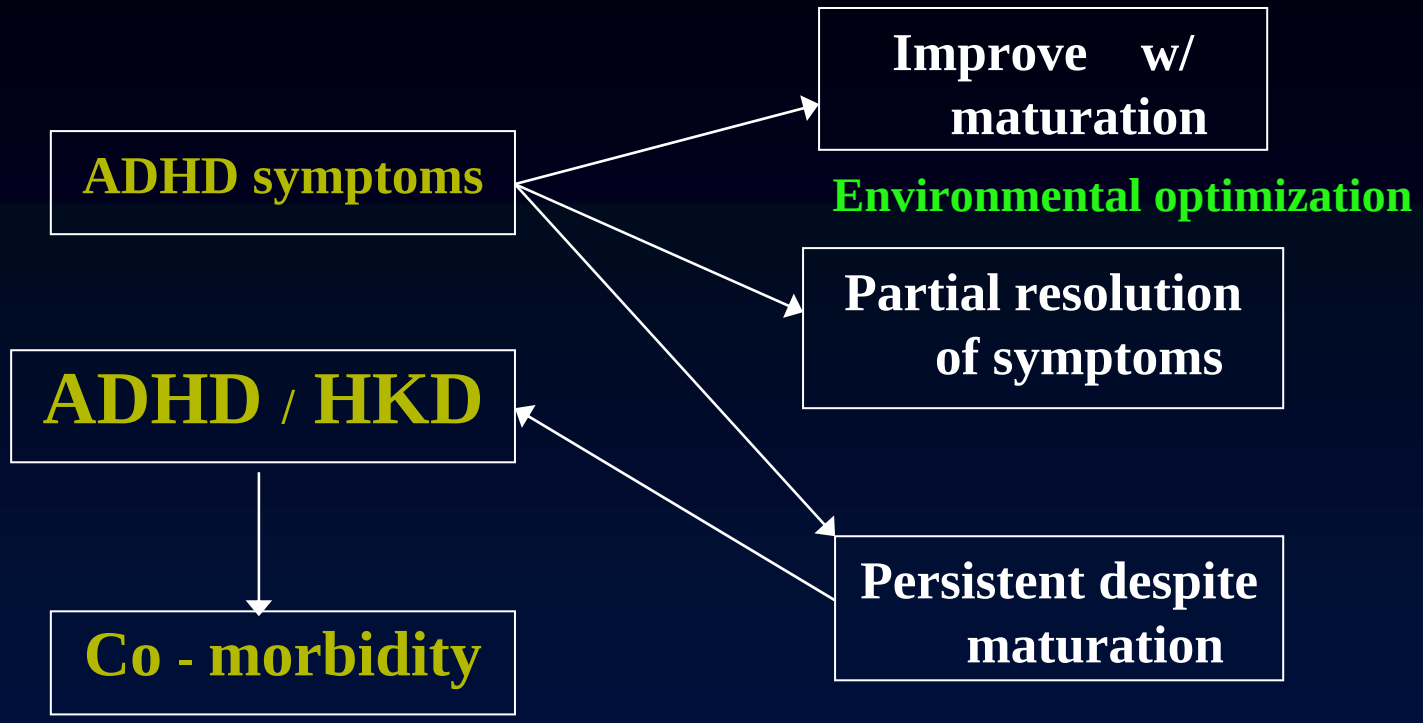


Interactional model of ADHD



El-Sayed. Maturational lag hypothesis of ADHD. Acta Paediatr 2003;92:776-84.

Interactional model of ADHD(2)



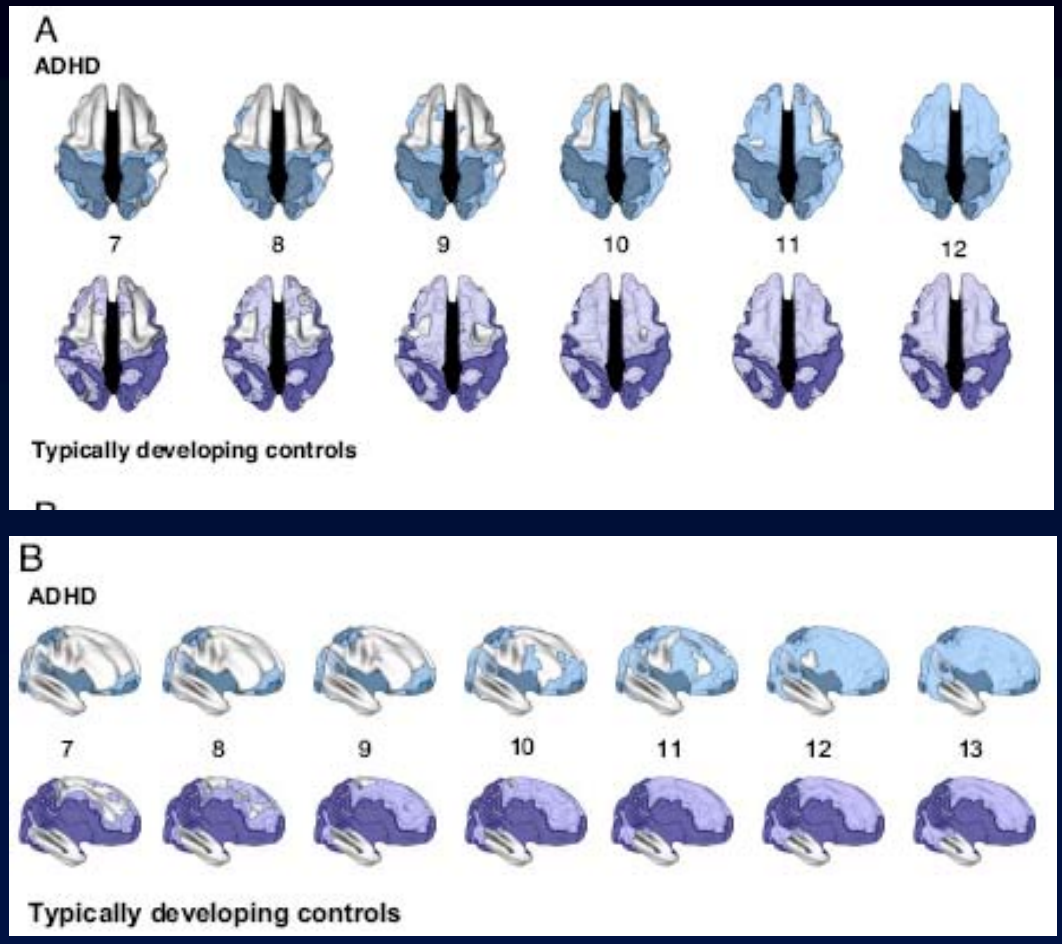
El-Sayed. Maturational lag hypothesis of ADHD. Acta Paediatr 2003;92:776-84.

Brain development and maturational trajectories

- **Brain development is dependent on dynamic relations between genes and environment.**
- **It depends on both maturation and nurture.**
- **The frontal brain region maturation peaks at 10.5 yrs and between 17-21 yrs.**
- **Hyperactive/impulsive matures with age, inattentive more pervasive w/ increasing age**

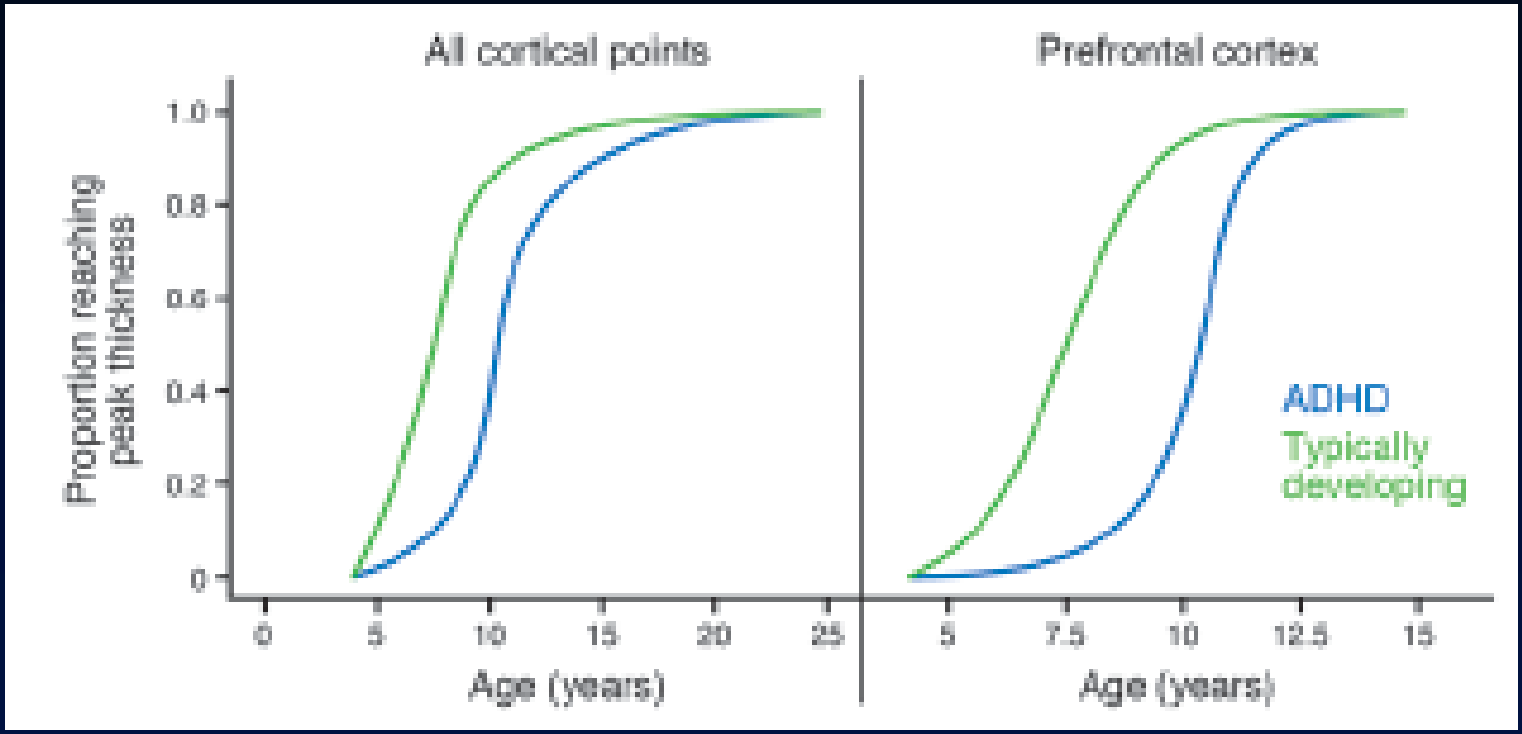
El-Sayed. Maturational lag hypothesis of ADHD. Acta Paediatr 2003;92:776-84.

Age of attaining peak cortical thickness



PNAS 2007;104:19649-54.

Age of attaining peak cortical thickness



PNAS 2007;104:19649-54.

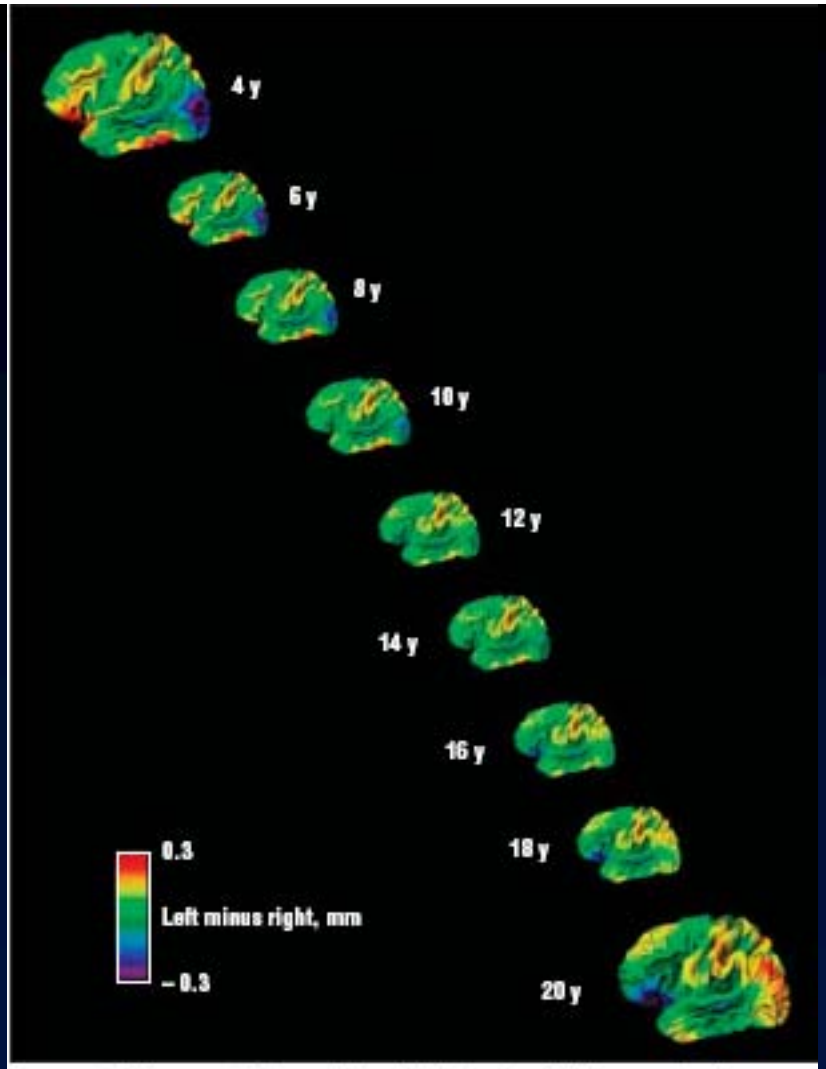


Figure 1. Differences between left and right cortical thickness at each age. Red and yellow areas indicate a thicker left cortex; blue and purple areas, a thicker right cortex. Note the changing asymmetries in the right orbitofrontal and inferior frontal regions and in the left posterior temporo-occipital cortex

control

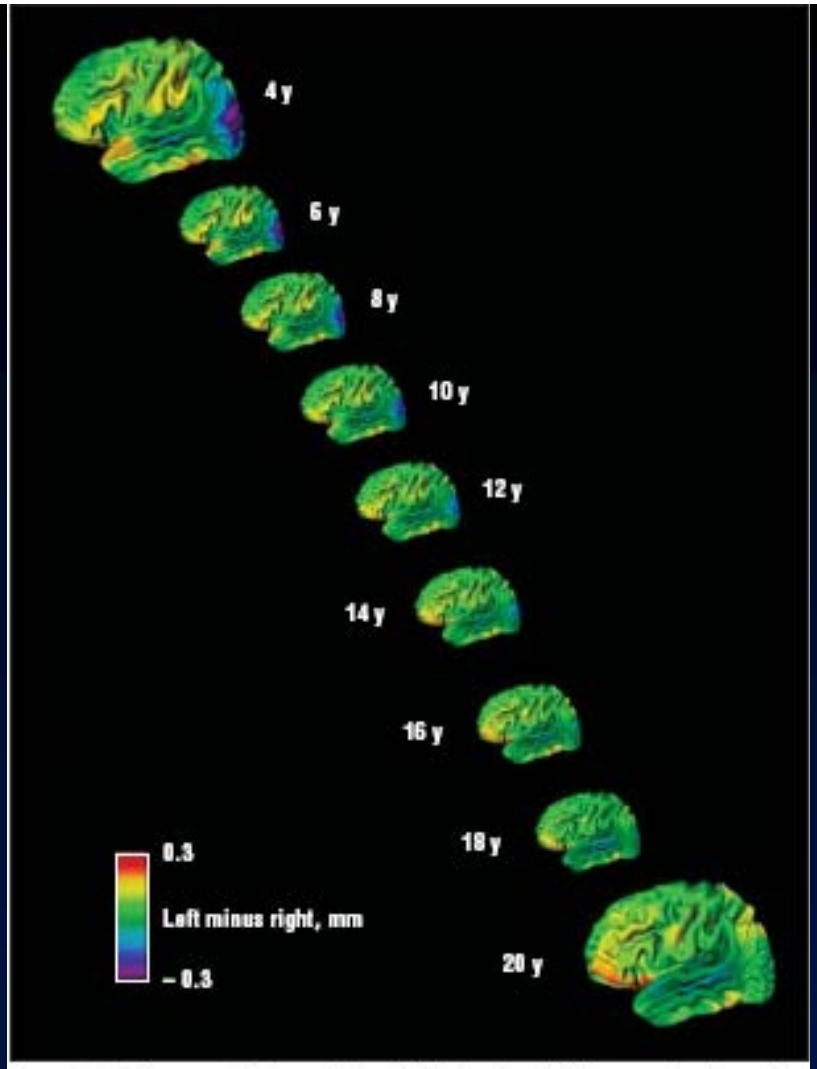


Figure 5. Differences between left and right cortical thickness at each age for the right-handed attention-deficit/hyperactivity disorder cohort. Red and yellow areas indicate a thicker left cortex; blue and purple areas, a thicker right cortex. Note the essential absence of changing asymmetries in the right orbitofrontal and inferior frontal regions. The left posterior temporo-occipital cortex shows a similar pattern of changing asymmetry with age as in the typically developing group

individual w ADHD

Arch Gen Psychiatry 2009;66:888-96.

Pharmacological agents used in treatment of ADHD

Stimulants (Recommended first-line therapy)
- Methylphenidate
- Amphetamine compounds
- Dextroamphetamine
- Pemoline

Antidepressants
- Tricyclic antidepressants
- Bupropion

Antihypertensives
- Clonidine
- Guanfacine

NE Reuptake Inhibitor
- Atomoxitine

Wilens T, *et al*. ADHD, In Annual Review of Medicine, 2002: 53.
Greenhill L. Childhood attention deficit hyperactivity disorder: pharmacological treatments. In: Nathan PE, Gorman J, eds. Treatments that Work. Philadelphia, PA: Saunders; 1998:42-64.

Stimulants and the brain

- **Stimulants produce a rise in resting dopamine levels by:**

➢ **Directly increasing release**

➢ **Blocking reuptake**

leading to

❖ **Increased availability of dopamine and noradrenaline in the synaptic cleft and at dopamine receptor sites**

Methylphenidate
(Ritalin, Rubifen)

- Very widely used
- Very large number of clinical trials (>130)
- Relatively safe in long term
- Cheap
- Dose up to 2mg/kg/day, titrated
- Short half life – given 2 or 3 times a day

Clinical response to MPH

- Reduction in core symptoms
- Increased focus and application
- Improved social function
- Increased self esteem
- Efficacy possibly associated with younger age, more severe symptoms, absence of anxiety
- Tolerance
- Not a cure

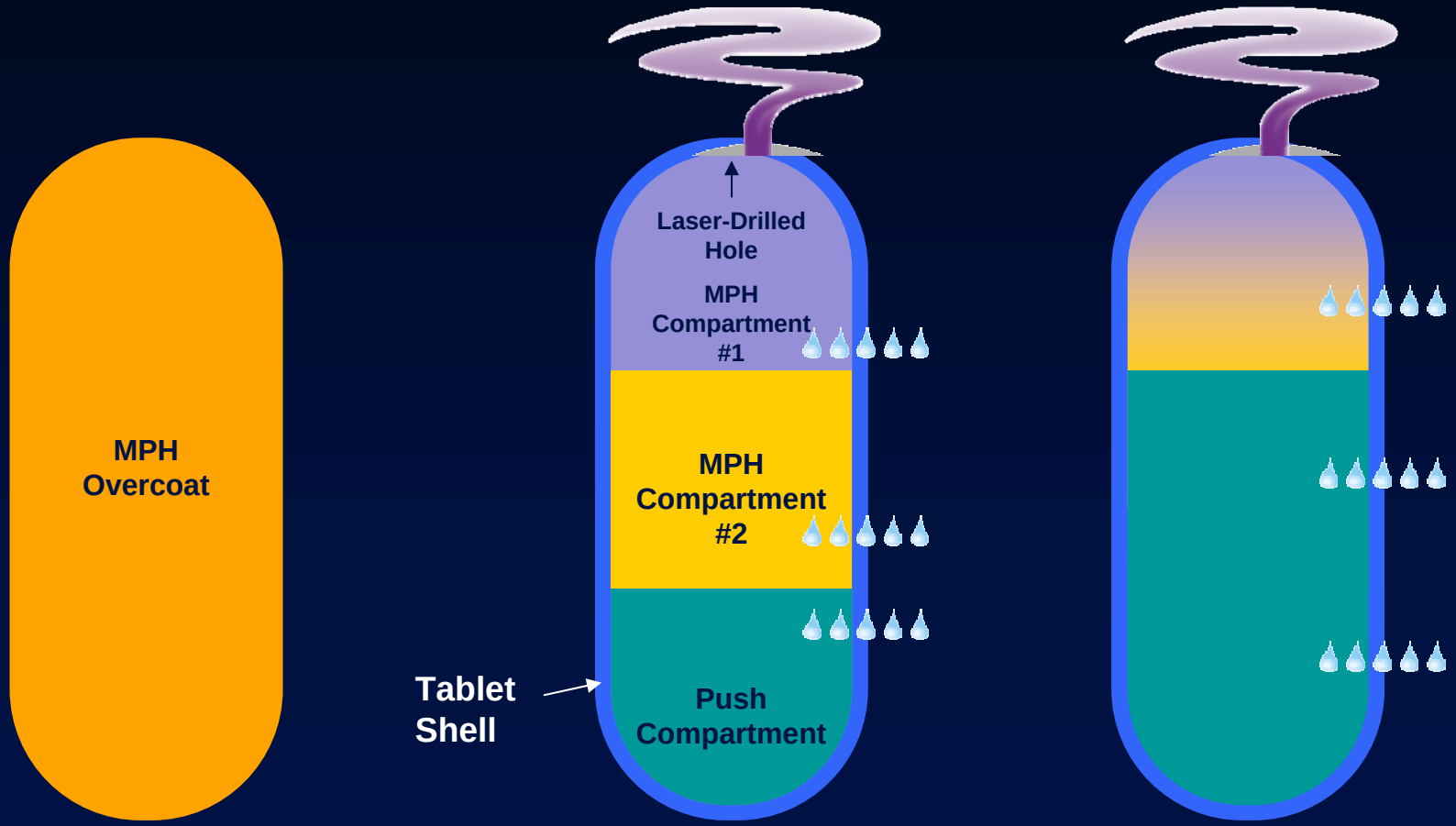
Side effects

- Appetite suppression
- Insomnia (delayed sleep onset)
- Headache
- Appearance of short term personality change, Zombie effect.
- ?Depression

Problems needing to be solved

- Short half life
- Fluctuations in blood levels
- Inconvenience
- The end of the day

Osmotic release oral solution MPH (Concerta)



Therapy options as part of total treatment programme

- Behavioural treatment
- Medication management
- Combining medication/behavioural treatment
- Educating parents/patient about ADHD
- Educational support services

Symptom-correlated brain regions in young adults with combined-type ADHD.

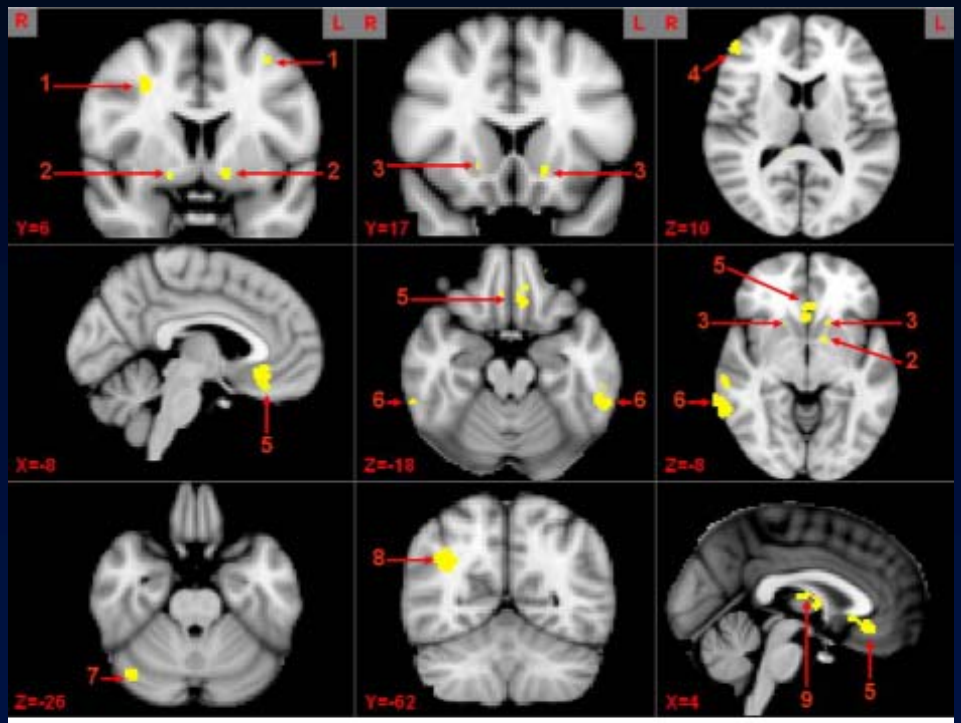
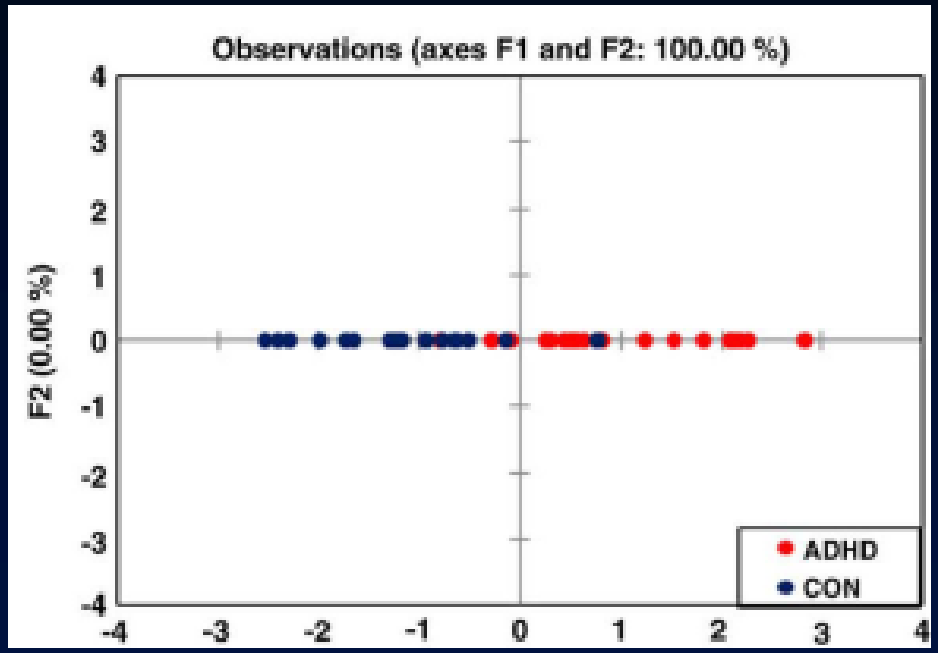


Fig. 1.
Brain regions correlated with inattentive symptomatology across condition. 1 = middle frontal gyrus (MFG), 2 = putamen (Puta), 3 = nucleus accumbens (NAC), 4 = inferior frontal gyrus (IFG), 5 = medial orbital frontal cortex (mOFC), 6 = inferior temporal gyrus (ITG), 7 = cerebellum (Cereb), 8 = lateral inferior parietal (LIP), 9 = thalamus (Thal).

Psychiatry Res 2010;182:96-102.

Symptom-correlated brain regions in young adults with combined-type ADHD.



Psychiatry Res 2010;182:96-102.

Learning Disability

Learning Disorders (DSM-IV)

- Reading Disorder
- Mathematics Disorder
- Disorder of Written Expression
- Learning Disorder NOS

Reading Disorder

- **A. Reading achievement, as measured by individually administered standardized tests of reading accuracy or comprehension, is substantially below that expected given the person's chronological age, measured intelligence, and age-appropriate education.**

Reading Disorder

- **B. The disturbance in Criterion A significantly interferes with academic achievement or activities of daily living that require reading skills.**
- **C. If a sensory deficit is present, the reading difficulties are in excess of those usually associated with it.**

Reading Disorder

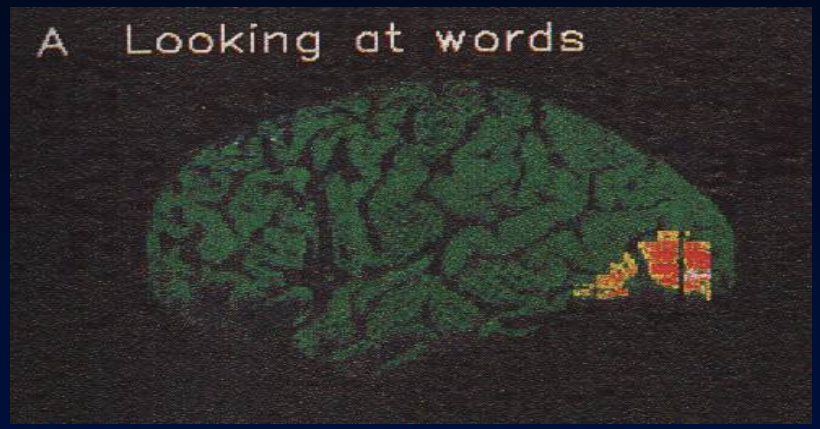
- Account for 80+% of all LD
- Prevalence rate 5-10 to 17.5% in children
- Boys = girls
- Not a transient developmental lag
- Definition : still controversial

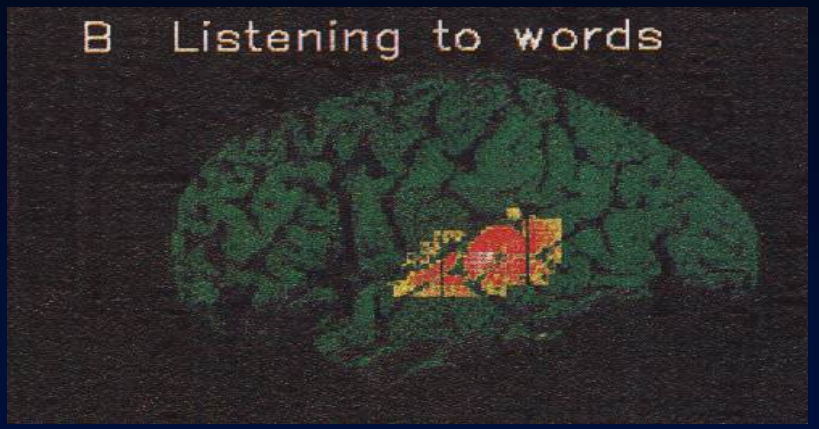
Etiology

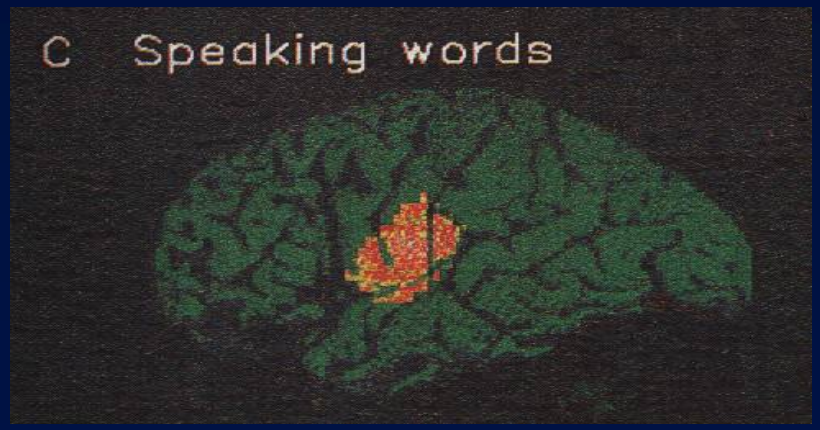
- 1. Heritability : both familial and heritable
- rate among siblings = 40%
- linkage study : chromosome 6, 15
- 2. Neurobiology : difference in the temporo-parieto-occipital brain region

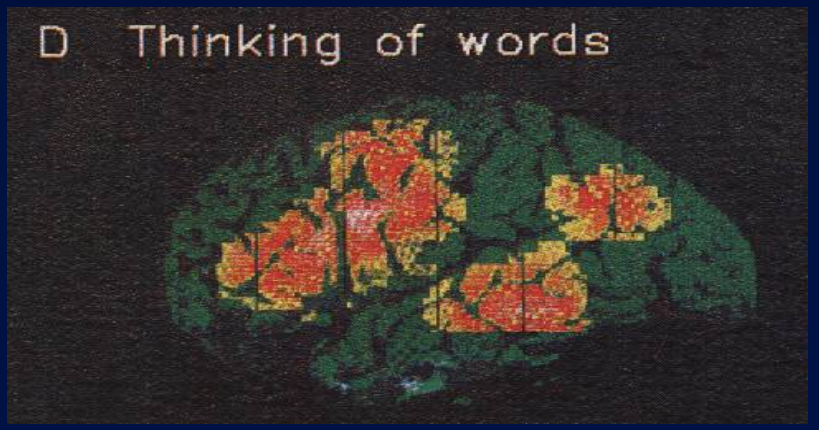
Brain function during various language activities.

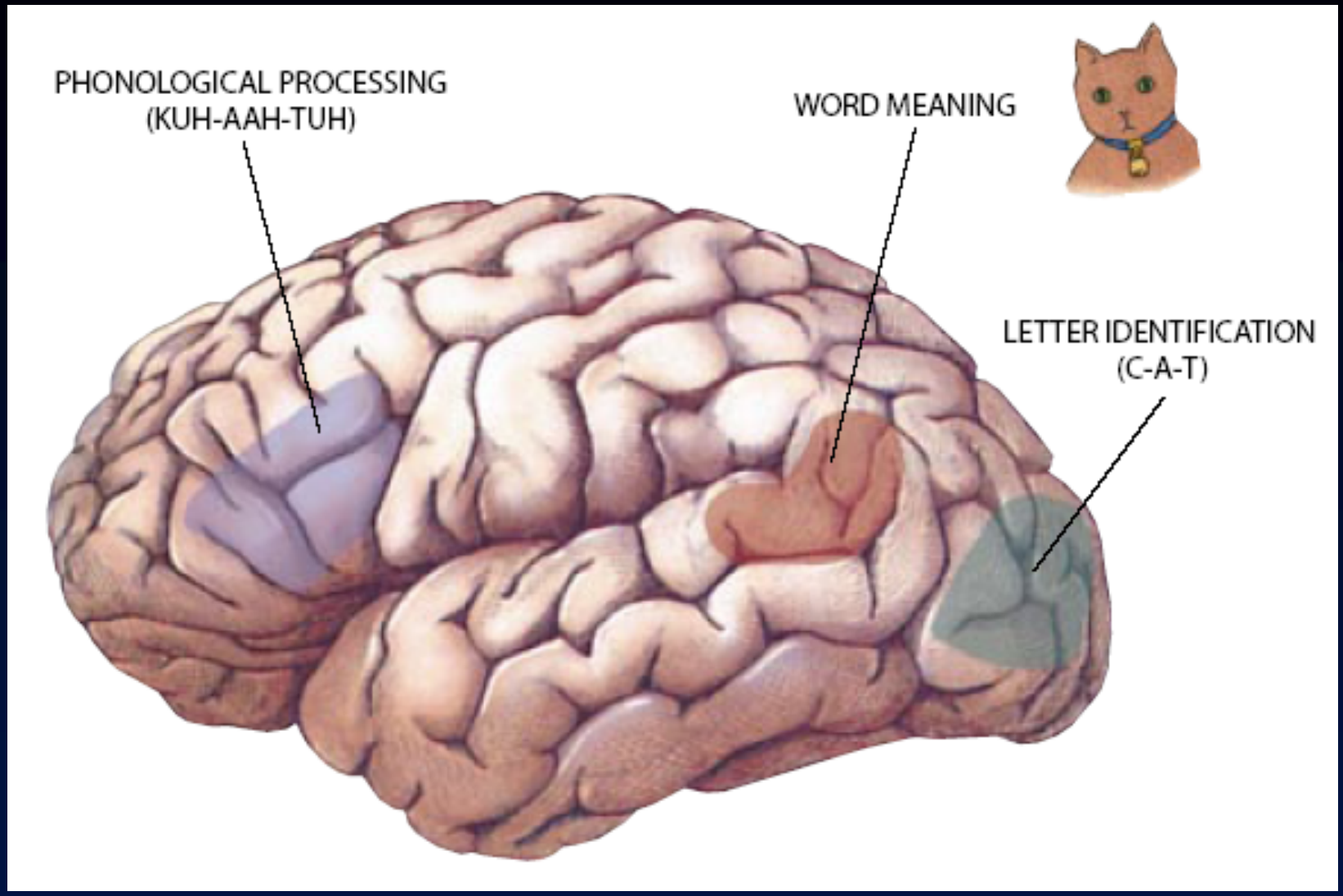
(Price 1995)



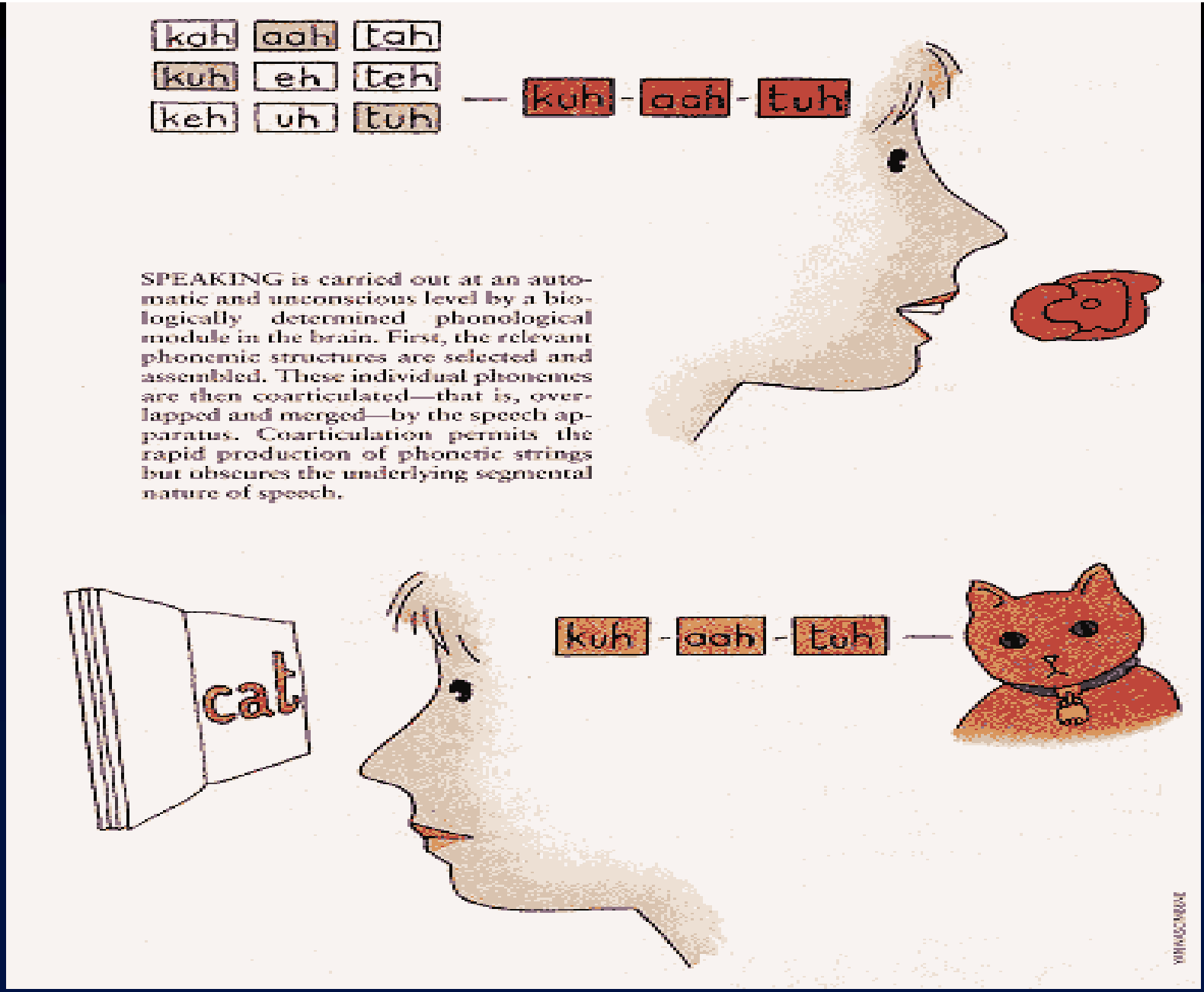




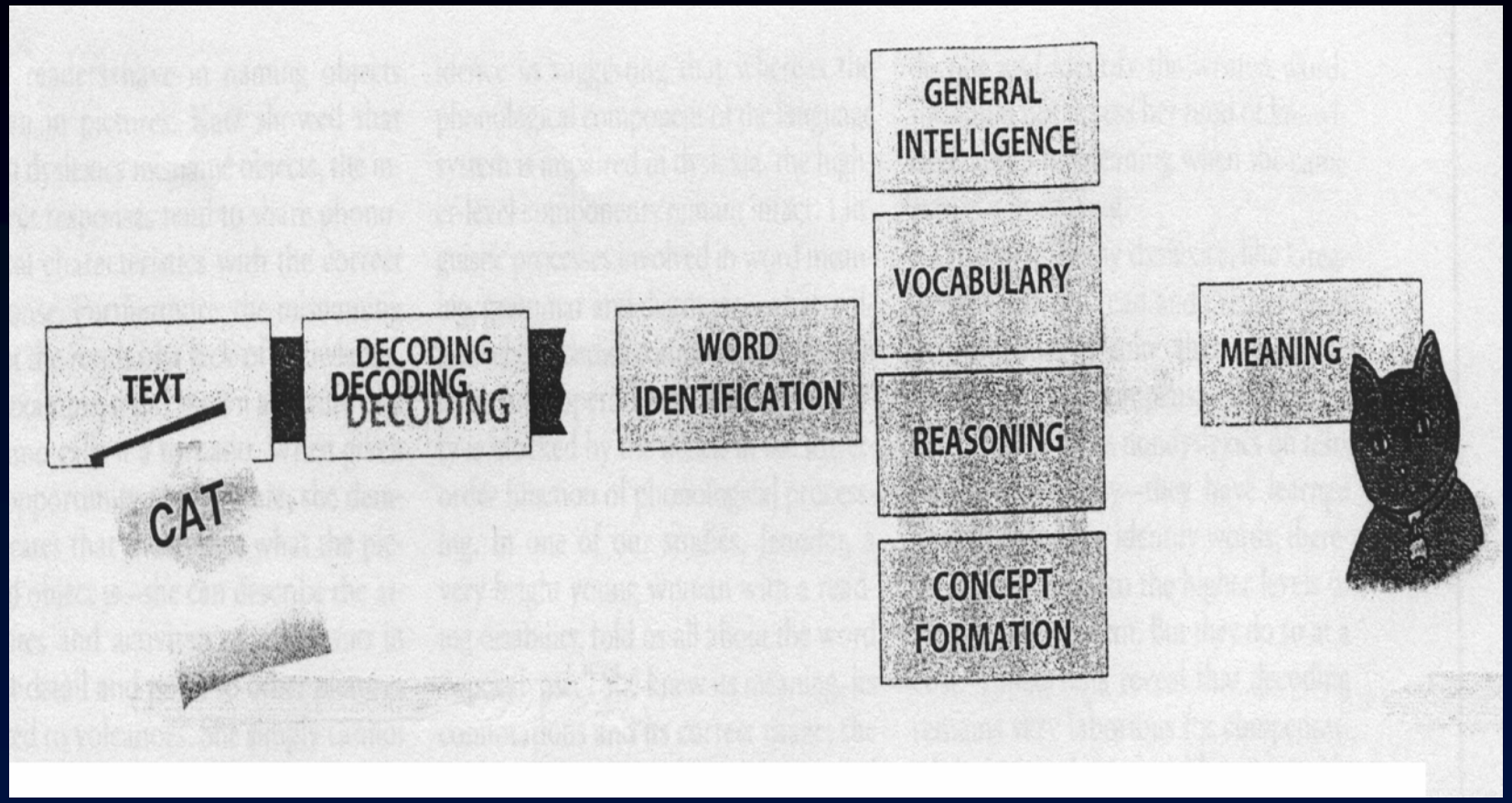


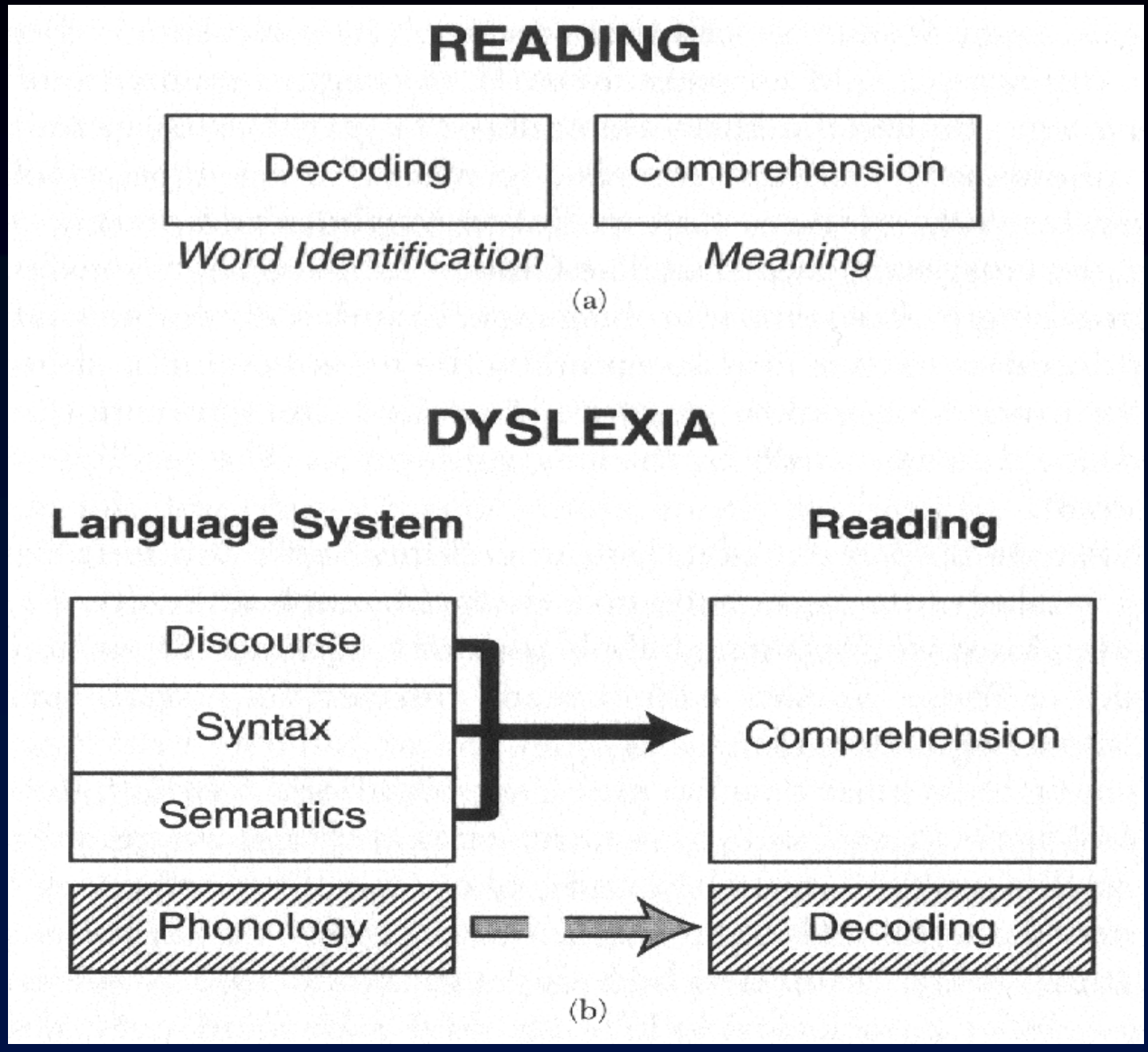


Shaywitz SE. *Sci Am.* 1996;275:98-104.



Shaywitz SE. *Sci Am.* 1996;275:98-104.


TEXT
CAT
DECODING
DECODING
DECODING
WORD IDENTIFICATION
GENERAL INTELLIGENCE
VOCABULARY
REASONING
CONCEPT FORMATION
MEANING


READING
Decoding
Comprehension
Word Identification
Meaning
(a)
DYSLEXIA
Language System
Reading
Discourse
Syntax
Semantics
Comprehension
Phonology
Decoding
(b)

Core deficit in individual with dyslexia:

Phonological awareness

Elbro, C. *Reading and Writing.*1996;8:453-485.

National Reading Panel (2000). *Teaching Children to Read.*

Phonology

- **Deficits in phonologic awareness distinguish children with dyslexia from those who are not.**
- **Phonologic measures predict later reading achievement.**

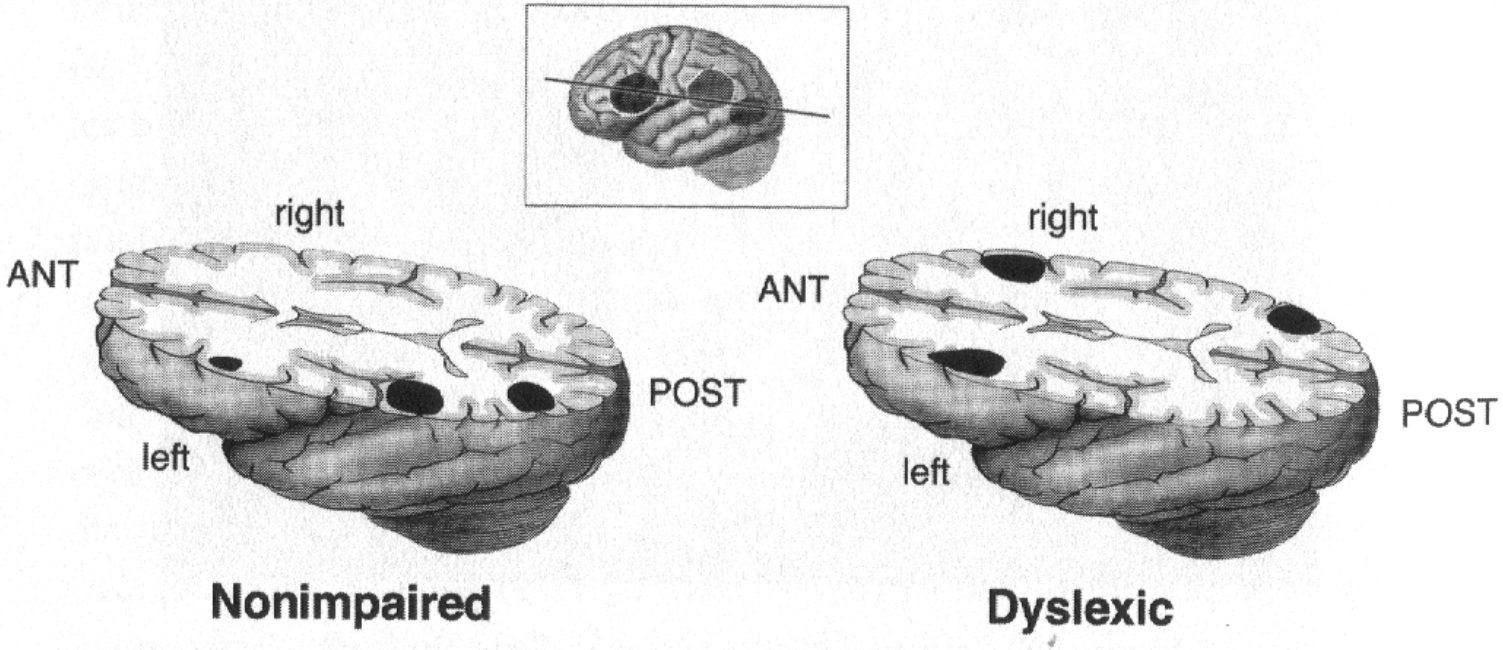


Figure 27. Dyslexic Readers Use Compensatory Systems to Read

The nonimpaired reader, on the left, activates neural systems that are mostly in the back of the left side of the brain; the dyslexic reader, on the right, activates systems on the right side and in the front of the brain on the left.

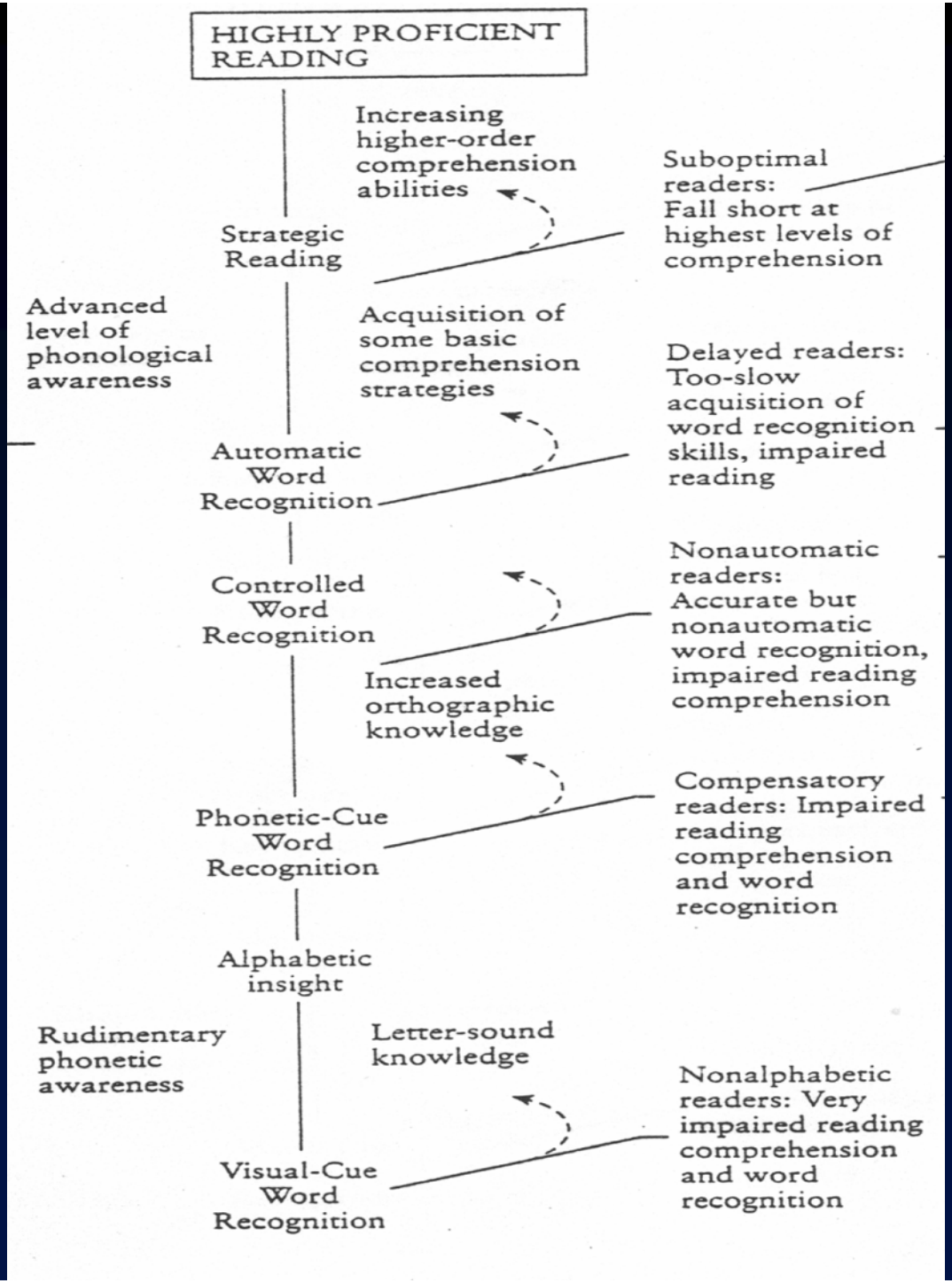
การสอนอ่านภาษาไทย

แบบเรียนภาษาไทยชั้น ป. 1

อ่านสะกดคำและแจกลูก คำที่มี ง สะกด

จั ง —— จ – ั – ง —— จั ง
จั ง ดั ง ตั ง บั ง พั ง ขั ง ถั ง หั ง

พัฒนาการด้านการอ่าน
ในระดับต่างๆ


HIGHLY PROFICIENT READING
Increasing higher-order comprehension abilities
Suboptimal readers: Fall short at highest levels of comprehension
Strategic Reading
Advanced level of phonological awareness
Acquisition of some basic comprehension strategies
Delayed readers: Too-slow acquisition of word recognition skills, impaired reading
Automatic Word Recognition
Controlled Word Recognition
Nonautomatic readers: Accurate but nonautomatic word recognition, impaired reading comprehension
Increased orthographic knowledge
Compensatory readers: Impaired reading comprehension and word recognition
Phonetic-Cue Word Recognition
Alphabetic insight
Rudimentary phonetic awareness
Letter-sound knowledge
Nonalphabetic readers: Very impaired reading comprehension and word recognition
Visual-Cue Word Recognition

Psycho-educational testing

- **Intelligence testing**
- **WISC-III**
- **Stanford-Binet 4th**
- **Comprehensive test of Non-Verbal Intelligence**

- **Academic testing**
- **Kaufman Test of Educational Achievement**
- **Wide Range Achievement Test**
- **Woodcock-Johnson Psycho-educational Battery**

การทดสอบภาษาไทย

- ข้อจำกัดมากกว่าภาษาอังกฤษ
- เขียนตามคำบอก คล้ายเขียนไทย

  (ถ้าสะกดผิด ต้องถาม “ได้ยินว่าอะไร”)
- การตัดพยัญชนะท้าย ลูก = ลูก
- การตัดพยัญชนะต้น หวาน = หวาน
- อ่านและสะกด
- อ่านจับใจความ

DDx. those with reading difficulties

- MR
- dyslexia
- language-based LD
- hyperlexia
- acquired alexia
- sensory impairment

Prevalence

- **Speech & language dis. 7-15%**
- **ADHD 5-9%**
- **Learning Disabilities 7-17%**

Comorbidity

- **Lang. Dis. & ADHD 8-90%**
- **ADHD & dyslexia 15-30%**
- **Lang. Dis. & dyslexia 18-40%**

Comorbidity of learning and attention disorders. Fletcher JM, Shaywitz SE, Shaywitz BA. Pediatr Clin North Am 1999;46:885-97.

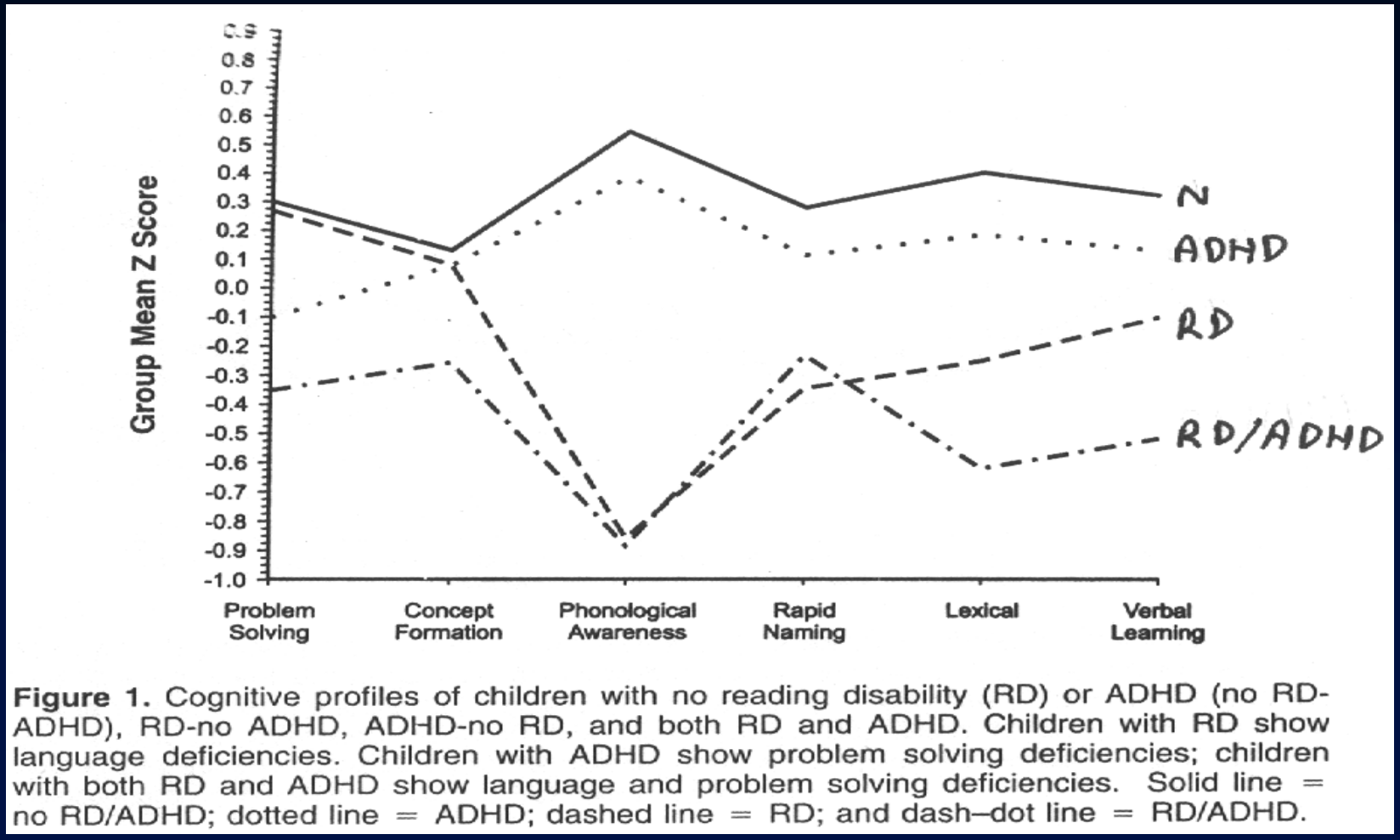
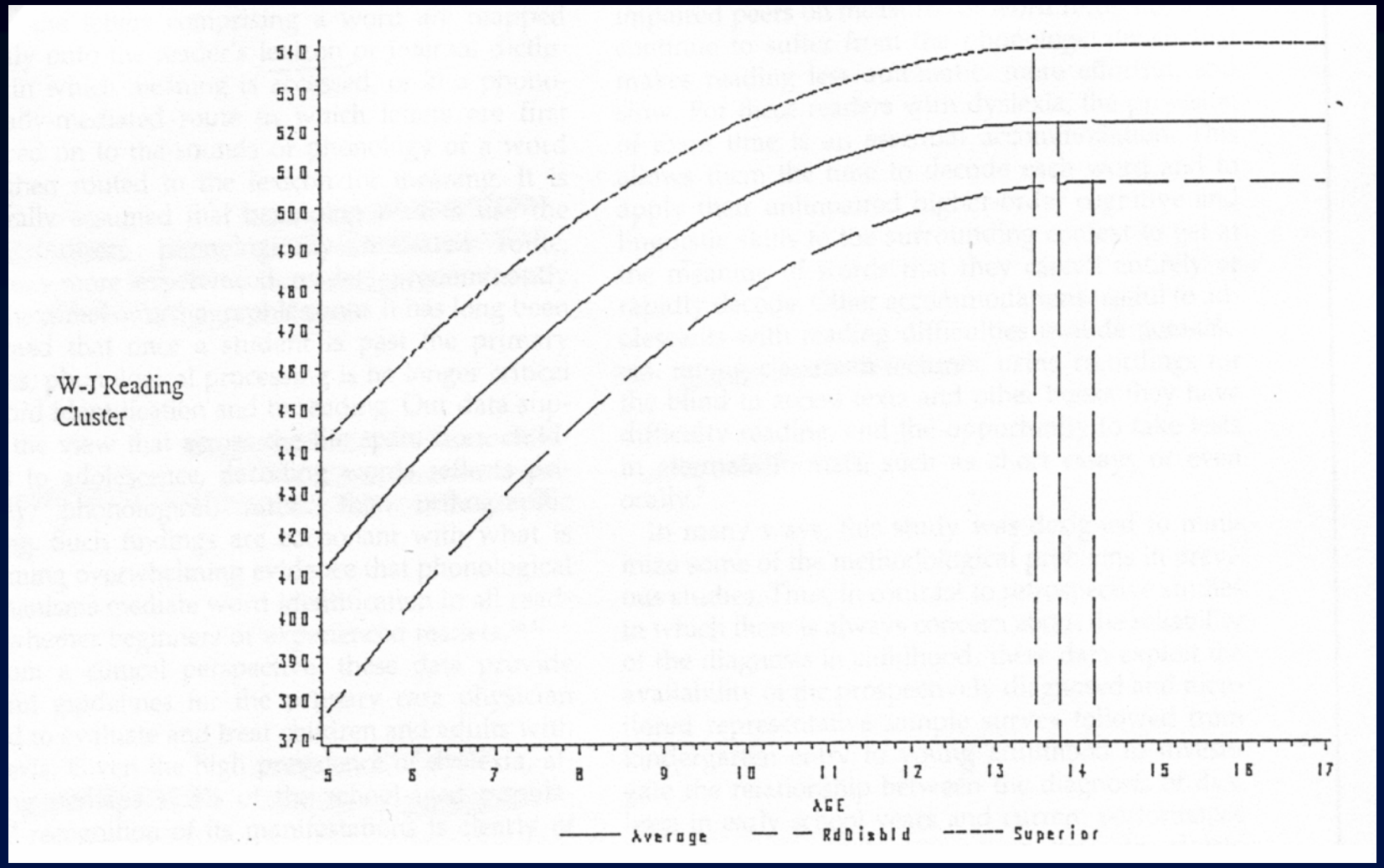


Figure 1. Cognitive profiles of children with no reading disability (RD) or ADHD (no RD-ADHD), RD-no ADHD, ADHD-no RD, and both RD and ADHD. Children with RD show language deficiencies. Children with ADHD show problem solving deficiencies; children with both RD and ADHD show language and problem solving deficiencies. Solid line = no RD/ADHD; dotted line = ADHD; dashed line = RD; and dash–dot line = RD/ADHD.

Persistence of dyslexia

Pediatrics 1999;104:1351-9.



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http://journaloflearningdisabilities.sagepub.com
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http://online.sagepub.com

Development of Oral Reading Fluency in Children With Speech or Language Impairments

A Growth Curve Analysis

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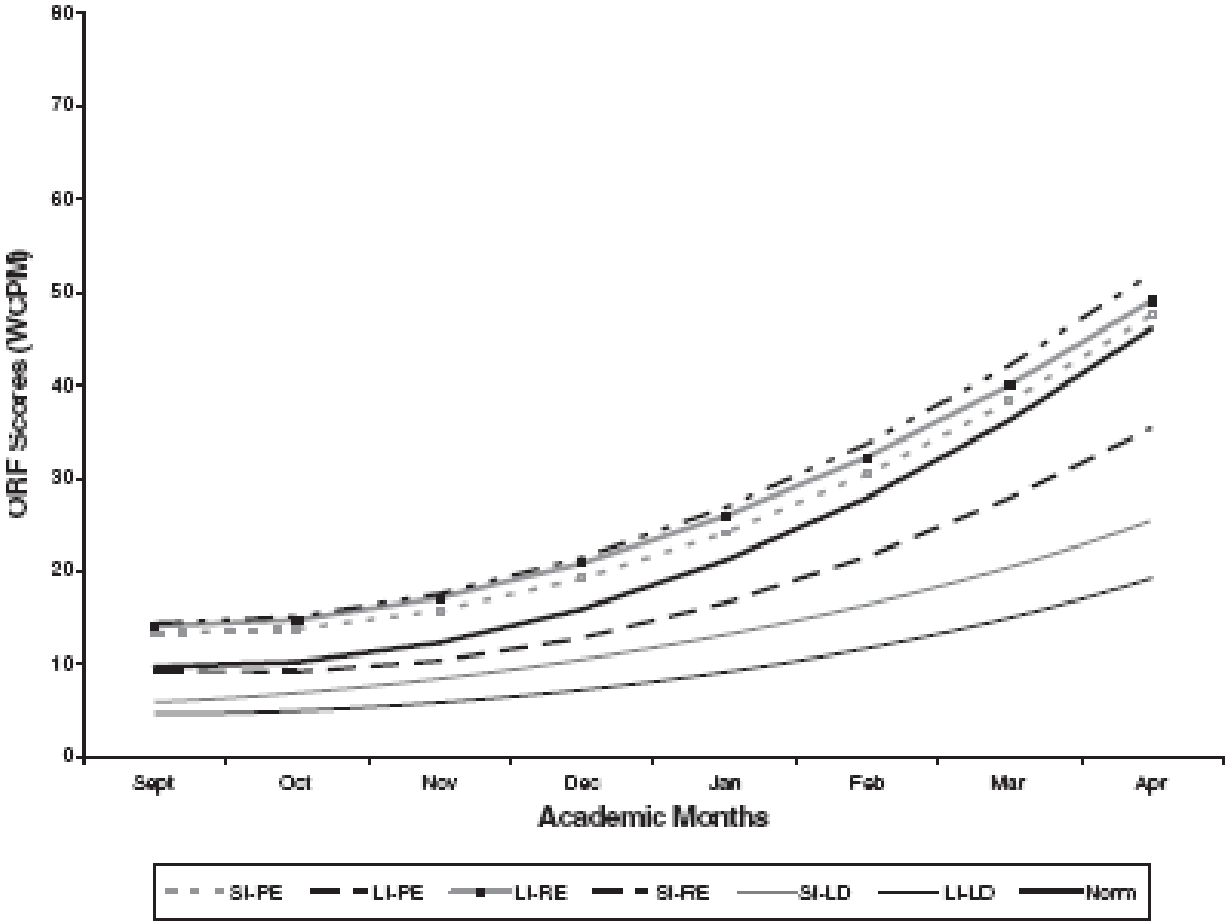
University of Kansas, Lawrence
Christopher J. Lonigan
Florida Center for Reading Research, Florida State University, Tallahassee

This longitudinal study used piece-wise growth curve analyses to examine growth patterns in oral reading fluency for 1,991 students with speech impairments (SI) or language impairments (LI) from first through third grade. The main finding of this study was that a diagnosis of SI or LI can have a detrimental and persistent effect on early reading skills. Results indicated differences between subgroups in growth trajectories that were evident in first grade. A large proportion of students with SI or LI did not meet grade-level reading fluency benchmarks. Overall students with SI showed better performance than students with LI. Reading fluency performance was negatively related to the persistence of the SI or LI; the lowest performing students were those originally identified with SI or LI whose diagnosis changed to a learning disability. The results underscore the need to identify, monitor, and address reading fluency difficulties early among students with SI or LI.

A1

Figure 1
First-Grade Growth Curves



Note: First grade beginning of year benchmark = 7 words correct per minute (WCPM); end-of-year benchmark = 40 WCPM. ORF = oral reading fluency; SI-PE = speech impairment–persistent; LI-PE = language impairment–persistent; SI-RE = speech impairment–resolved; LI-RE = language impairment–resolved; SI-LD = speech impairment–learning disability group; LI-LD = language impairment–learning disability group; Norm = local normative reference group.

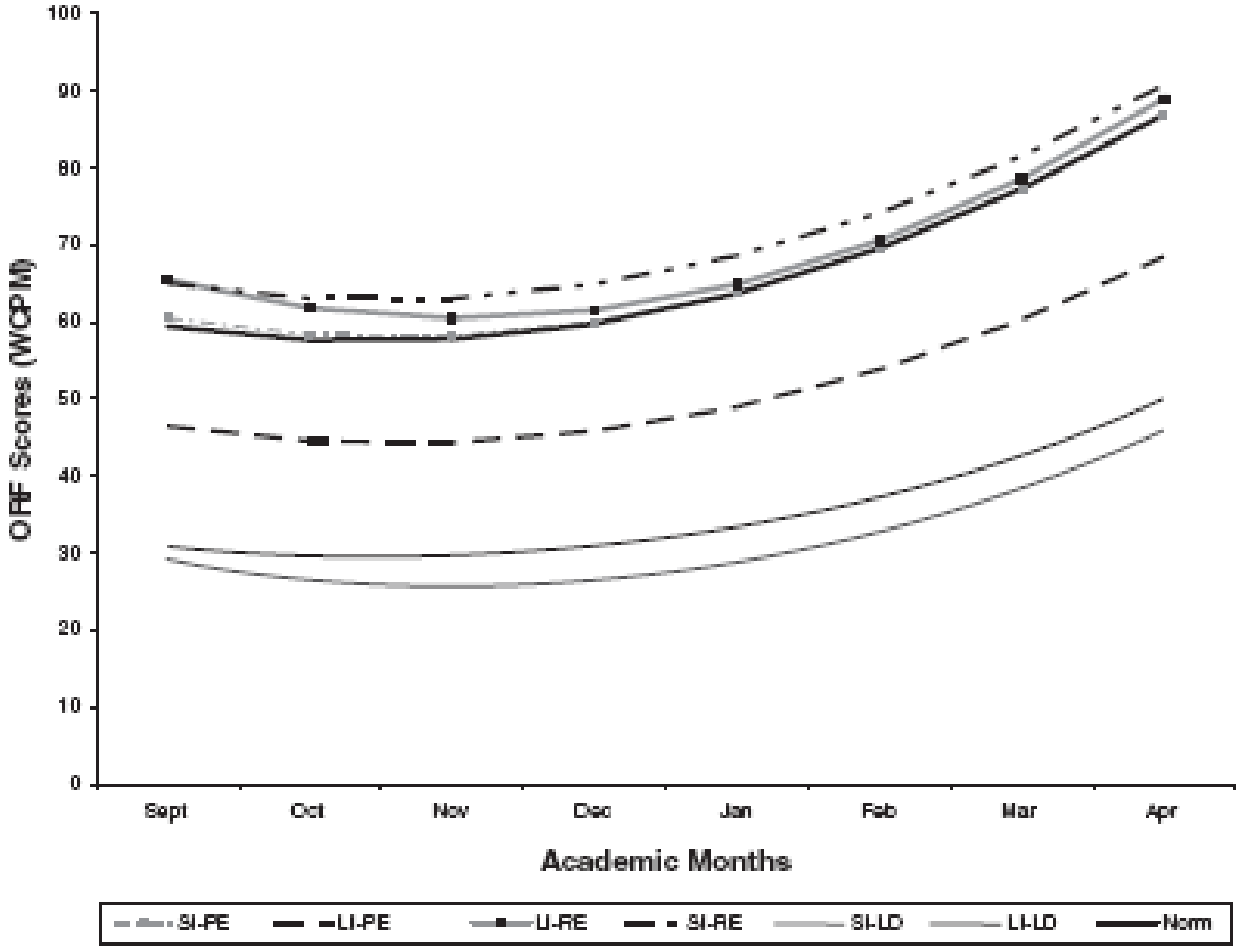
Slide 55

A1

ORF = oral reading fluency
WCPM = number of words correct per minute
LD = discrepancy at least 1 SD between IQ and performance score

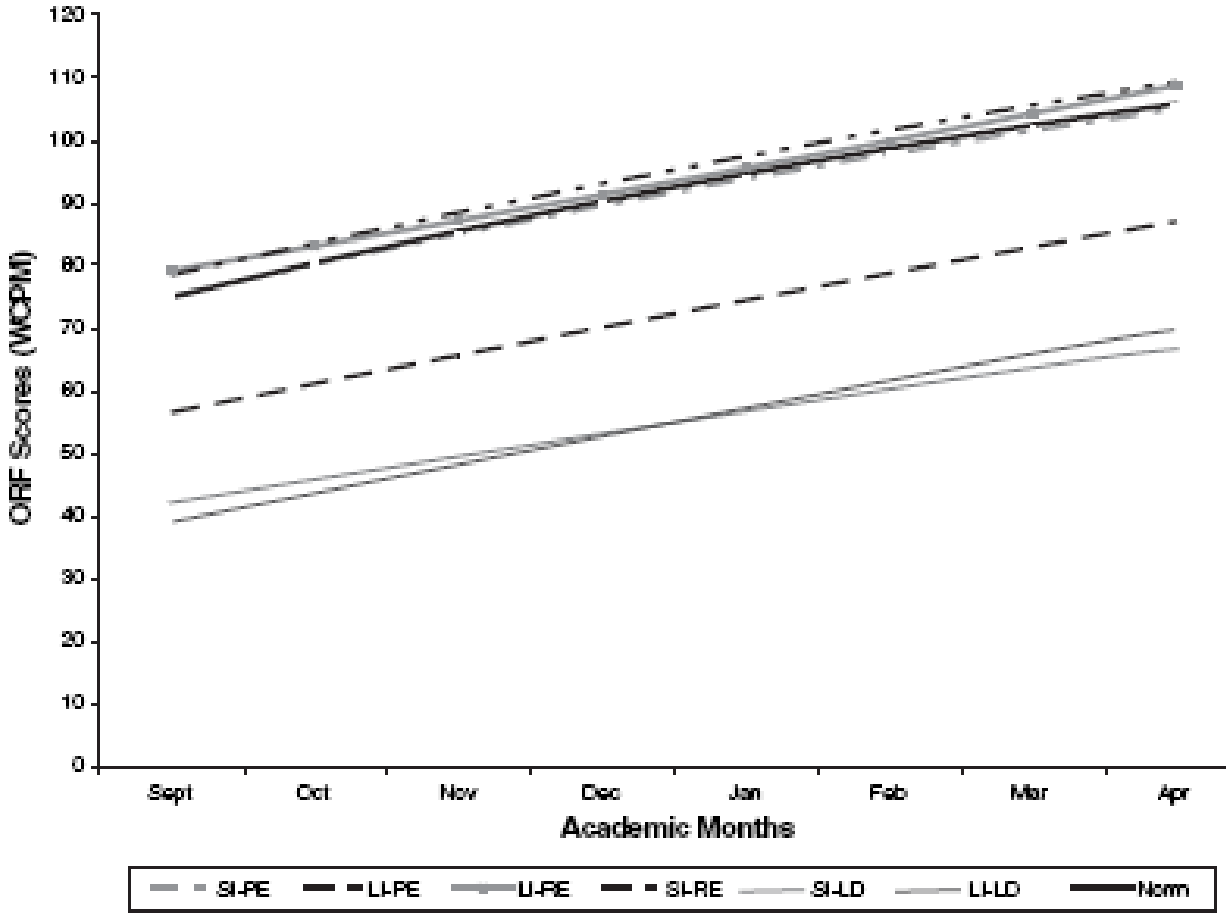
Asus, 12/10/2553

Figure 2
Second-Grade Growth Curves



Note: Second grade beginning of year benchmark = 44 word correct per minute (WCPM); end-of-year benchmark = 74 WCPM. ORF = oral reading fluency; SI-PE = speech impairment–persistent; LI-PE = language impairment–persistent; SI-RE = speech impairment–resolved; LI-RE = language impairment–resolved; SI-LD = speech impairment–learning disability group; LI-LD = language impairment–learning disability group; Norm = local normative reference group.

Figure 3
Third-Grade Growth Curves



Note: Third grade beginning of year benchmark = 77 word correct per minute (WCPM); end-of-year benchmark = 110 WCPM. ORF = oral reading fluency; SI-PE = speech impairment–persistent; LI-PE = language impairment–persistent; SI-RE = speech impairment–resolved; LI-RE = language impairment–resolved; SI-LD = speech impairment–learning disability group; LI-LD = language impairment–learning disability group; Norm = local normative reference group.

Management of LD

- Phoneme exercise, nurture language skills
- Various reading & teaching strategies
- Proper classroom placement
- Treat secondary psychological difficulties properly, e.g. anxiety, family conflicts, poor peer relationship, low self-esteem

Nurturing language skills in infants and young children.

1. Talk to your child frequently
    - 1.1 high pitch, clear cut words
    - 1.2 parallel talk
2. Read to your child interactively
    - 2.1 discussing story in books
    - 2.2 let your child make his own version
    - 2.3 allow him to tell key events
    - 2.4 acting out or creating a puppet show
    - 2.5 reinforce sequential reading

Nurturing language skills in infants and young children.

1. Talk to your child frequently
2. Read to your child interactively
3. Cultivate phonological awareness
    - 3.1 rhyming songs and games
    - 3.2 broken record game
4. Children learn one-to-one correspondences then patterns and sequence
5. Link your children with positive early reading experiences

Proper classroom placement

- Regular class placement with special education consultation
- Regular class placement with pull-out placement in special resource room
- Special class placement
- Special school
- Private tutoring

Essentials of a successful reading intervention

- ***Early intervention*** **-the earlier, the better.**
- ***Intense instruction*** **-the child should be in a group of 3-4 students.**
- ***High-quality instruction*** **-emphasize on phoneme exercise,**
  -computers are not a substitute for a good teacher.
- ***Sufficient duration*** **-90 minutes a day for 1-3 years**
- ***By-pass techniques*** **-tape recording, oral examination, computer, calculator**

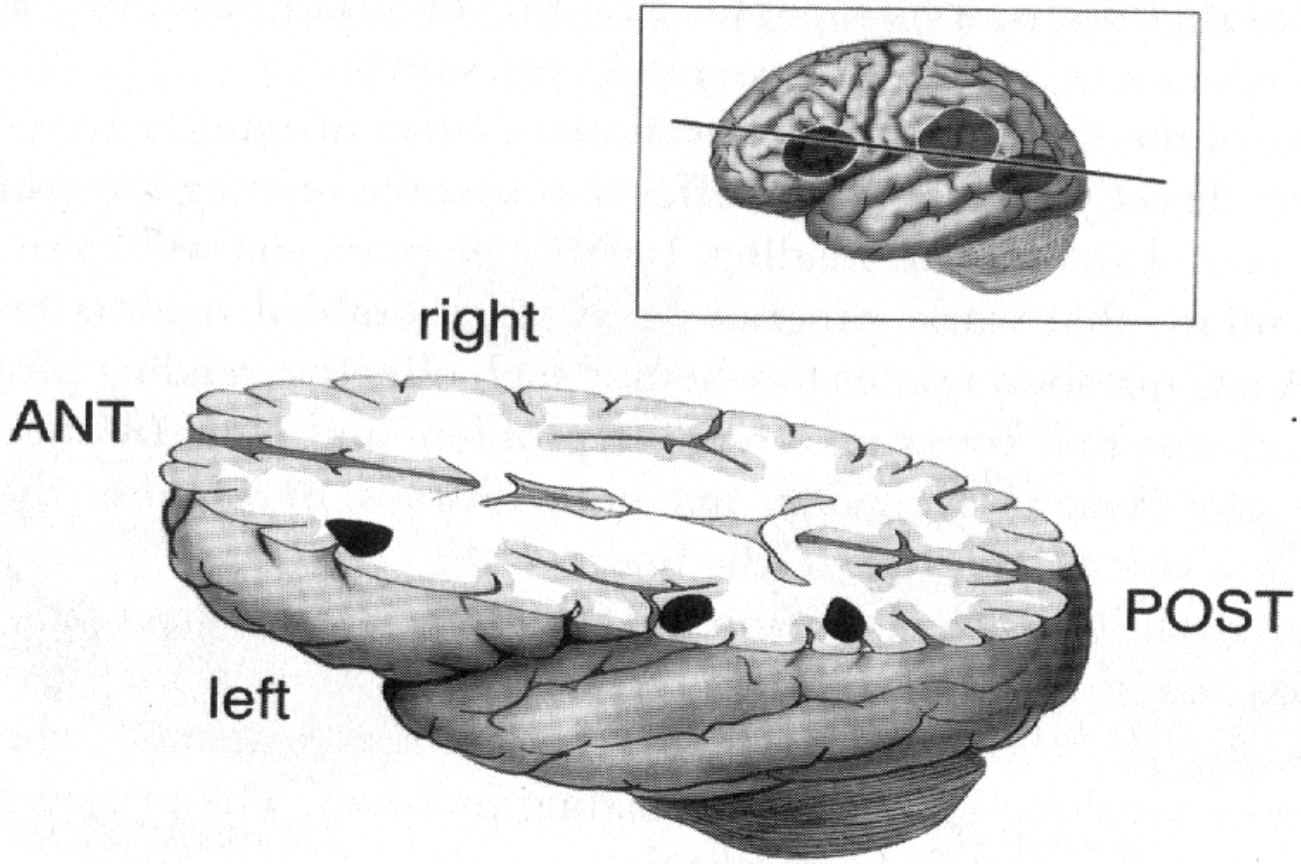


Figure 28. Effective Reading Interventions Result in Brain Repair

One year following an effective reading intervention, dyslexic children have developed left-side reading systems (shown in black) in both the front and back of the brain.

กรมวิชาการเตรียมนำวิธีเก่าสอนภาษาไทยเด็ก

กรมวิชาการเตรียมนำวิธีการสอนภาษาไทยแบบเก่ากลับมาใช้ใหม่ ระบุประสบความสำเร็จนำกลับมาใช้ใหม่ และขอให้ความสำคัญสถาบันภาษาไทย เร่งพัฒนาครู และสื่อการเรียนการสอน ลดข้อสอบปรนัย พร้อมแจงเหตุที่เด็กอ่อนภาษาไทย อ้างเด็กไม่ได้ใช้ภาษากลางเป็นหลักทำให้ใช้ภาษาไทยเพี้ยนประกอบกับเกณฑ์การสอบสูงมาก

นายประพัฒน์พงศ์ เสนาคุหธิ์ อธิบดีกรมวิชาการ กล่าวภายหลังการประชุมเพื่อหาแนวทางในการพัฒนาการเรียนการสอนภาษาไทย โดยมีเจ้าหน้าที่เชี่ยวชาญด้านหลักสูตร นักวิจัย นักวัดผลและประเมินผล และเจ้าหน้าที่จากสถาบันภาษาไทยแห่งชาติเข้าร่วมด้วยว่า จากที่นายสุวิทย์ คุณกิตติ รัฐมนตรีว่าการ ศธ. ขอให้ทางกรมวิชาการได้เร่งพัฒนาการเรียนการสอนภาษาไทย เนื่องจากปัจจุบันนี้ไม่เพียงจากการประเมินผลการเรียนระดับชาติในวิชาภาษาไทยของเด็กไทยอยู่ในระดับต่ำแล้ว จากประสบการณ์ตรงก็พบว่ามีเด็กนักเรียนที่จบป.6 แล้วแต่ไม่สามารถกรอกใบสมัครเพื่อเข้าเรียนม.1 ได้ด้วยตนเอง

ทั้งนี้ ที่ประชุมมีมติให้สนองเป็นแนวทางในการแก้ปัญหา คือ การพัฒนาครูให้เลือกใช้วิธีการสอนที่หลากหลายได้อย่างเหมาะสม เนื่องจากการสอบถามจากนักวิจัยแล้วพบว่า การเรียนการสอนภาษาไทยจะประสบความสำเร็จหรือไม่นั้นขึ้นอยู่กับการเรียนการสอนในชั้นเรียนมีอิทธิพลมากที่สุด ทั้งการพัฒนาเลือกการเรียนการสอนด้วย โดยจะให้ใช้วิธีการสอนแบบเก่าๆ ที่เคยใช้แล้วประสบความสำเร็จให้นำกลับมาใช้ใหม่ เช่น วิธีการผสมคำการเขียนเรียงความ และการย่อความ เป็นต้น รวมทั้งให้มีการลดการสอบด้วยข้อสอบปรนัย โดยเน้นให้เขียนเรียงความมากขึ้น

นอกจากนี้ที่ประชุมยังได้เสนอทางแก้ปัญหาด้วยการให้ความสำคัญกับสถาบันภาษาไทยแห่งชาติที่ปัจจุบันมีอัตรากำลังคนเพียง 10 คนเท่านั้น ในการทำการวิจัยเพื่อส่งเสริมภาษาไทย และหาแนวทางแก้ปัญหาต่างๆ จึงต้องพึ่งงานวิจัยจากสถาบันอุดมศึกษา ซึ่งไม่ตรงกับความต้องการทำอย่างมาก ต้องการให้ความสำคัญเรื่องภาษาไทย ทางกรมวิชาการต้องการให้มีการเพิ่มอัตรากำลังคน โดยเฉพาะเจ้าหน้าที่วิจัย

แม้จะยอมรับว่าเด็กไทยอ่อนภาษาไทย แต่ต้องคำนึงถึงปัจจัยอื่นที่มีส่วนเพราะการเรียนการสอนไม่ดี เช่น ปัจจุบันเด็กๆ มีการฝึกการเขียนน้อย เนื่องจากมีเทคโนโลยีเข้ามาทำให้ความสำคัญการเขียนลดลง

OECD Programme for International Student Assessment (PISA) 2009.

	On the overall reading scale	On the reading subscales					On the mathematics scale	On the science scale
		Access and retrieve	*Integrate and interpret*	*Reflect and evaluate*	*Continuous texts*	*Non-continuous texts*		
OECD average	493	495	493	494	494	493	496	501
Shanghai-China	556	549	558	557	564	539	600	575
Korea	539	542	541	542	538	542	546	538
Finland	536	532	538	536	535	535	541	554
Hong Kong-China	533	530	530	540	538	522	555	549
Singapore	526	526	525	529	522	539	562	542
Canada	524	517	522	535	524	527	527	529
New Zealand	521	521	517	531	518	532	519	532
Japan	520	530	520	521	520	518	529	539
Serbia	442	449	445	430	444	438	442	443
Bulgaria	429	430	436	417	433	421	428	439
Uruguay	426	424	423	436	429	421	427	427
Mexico	425	433	418	432	426	424	419	416
Romania	424	423	425	426	423	424	427	428
Thailand	421	431	416	420	423	423	419	425
Trinidad and Tobago	416	413	419	413	418	417	414	410
Colombia	413	404	411	422	415	409	381	402
Brazil	412	407	406	424	414	408	386	405
Montenegro	408	408	420	383	411	398	403	401

OECD Programme for International Student Assessment (PISA) 2009.

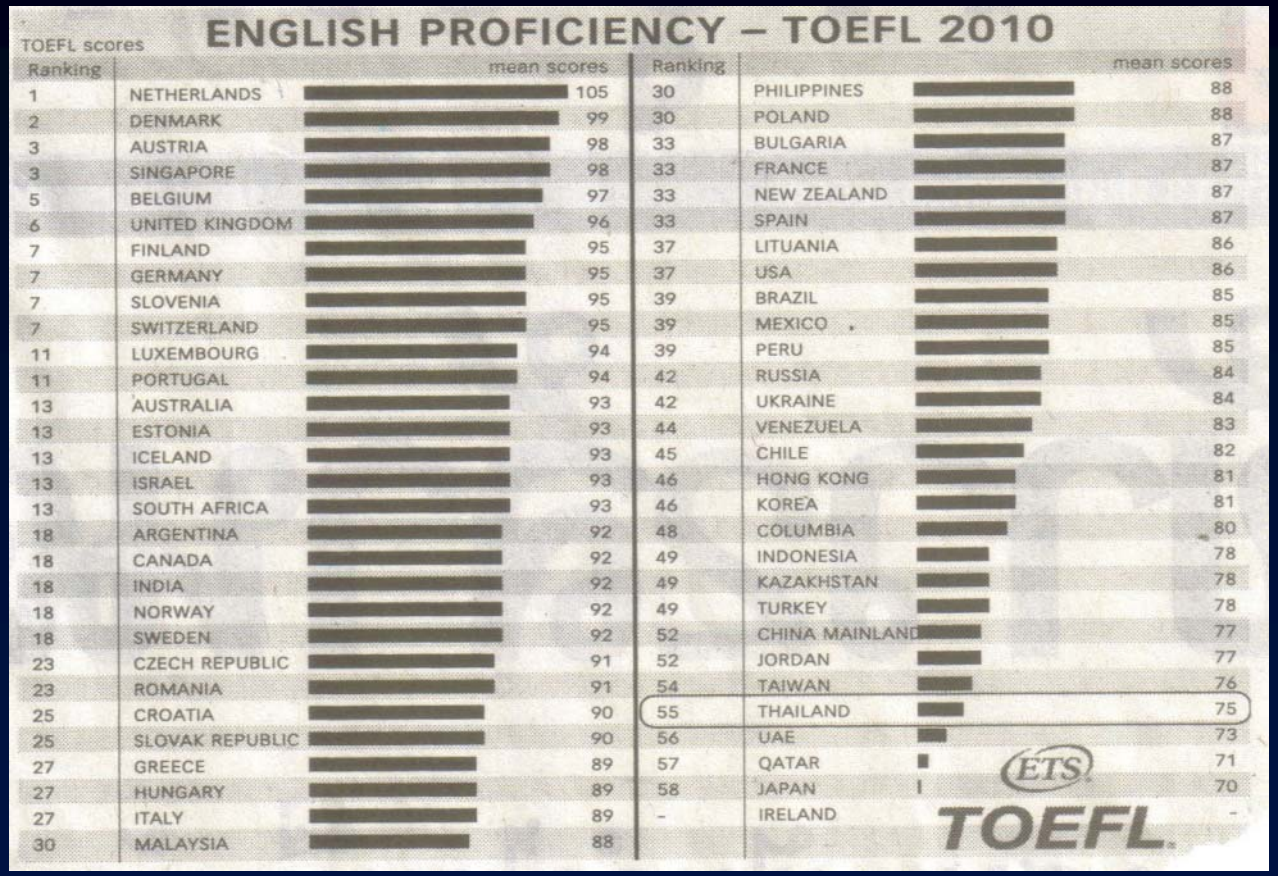
	Mean score in reading 2009	Change in reading performance between 2000 to 2009					
		All students	Boys	Girls	Share of students below proficiency Level 2	Share of students at proficiency Level 5 or above	Association of socio-economic background with reading performance
Thailand	421	-9	-6	-10	5.8	-0.2	-0.7
Peru	370	43	35	50	-14.8	0.4	0.1
Chile	449	40	42	40	-17.6	0.8	-7.6
Albania	385	36	35	39	-13.7	0.1	-9.9
Indonesia	402	31	23	39	-15.2		-6.9
Latvia	484	26	28	23	-12.5	-1.2	-11.0

OECD Programme for International Student Assessment (PISA) 2009.

How proficient Thai students are?

- **in reading** **50/65**
- **in mathematics** **50/65**
- **in sciences** **49/65**

Test Of English as a Foreign Language



TOEFL scores

ENGLISH PROFICIENCY – TOEFL 2010

Ranking		mean scores
1	NETHERLANDS	105
2	DENMARK	99
3	AUSTRIA	98
3	SINGAPORE	98
5	BELGIUM	97
6	UNITED KINGDOM	96
7	FINLAND	95
7	GERMANY	95
7	SLOVENIA	95
7	SWITZERLAND	95
11	LUXEMBOURG	94
11	PORTUGAL	94
13	AUSTRALIA	93
13	ESTONIA	93
13	ICELAND	93
13	ISRAEL	93
13	SOUTH AFRICA	93
18	ARGENTINA	92
18	CANADA	92
18	INDIA	92
18	NORWAY	92
18	SWEDEN	92
23	CZECH REPUBLIC	91
23	ROMANIA	91
25	CROATIA	90
25	SLOVAK REPUBLIC	90
27	GREECE	89
27	HUNGARY	89
27	ITALY	89
30	MALAYSIA	88

Ranking		mean scores
30	PHILIPPINES	88
30	POLAND	88
33	BULGARIA	87
33	FRANCE	87
33	NEW ZEALAND	87
33	SPAIN	87
37	LITUANIA	86
37	USA	86
39	BRAZIL	85
39	MEXICO	85
39	PERU	85
42	RUSSIA	84
42	UKRAINE	84
44	VENEZUELA	83
45	CHILE	82
46	HONG KONG	81
46	KOREA	81
48	COLUMBIA	80
49	INDONESIA	78
49	KAZAKHSTAN	78
49	TURKEY	78
52	CHINA MAINLAND	77
52	JORDAN	77
54	TAIWAN	76
55	THAILAND	75
56	UAE	73
57	QATAR	71
58	JAPAN	70
-	IRELAND	-

ETS TOEFL

Essential factors to promote self esteem

- **Feeling LOVABLE**
- **Feeling CAPABLE**

How to approach a child with learning problem?

Assessment of school failure

1. **Hx of academic achievement**
2. **Hx of development esp. language**
3. **Developmental examination**

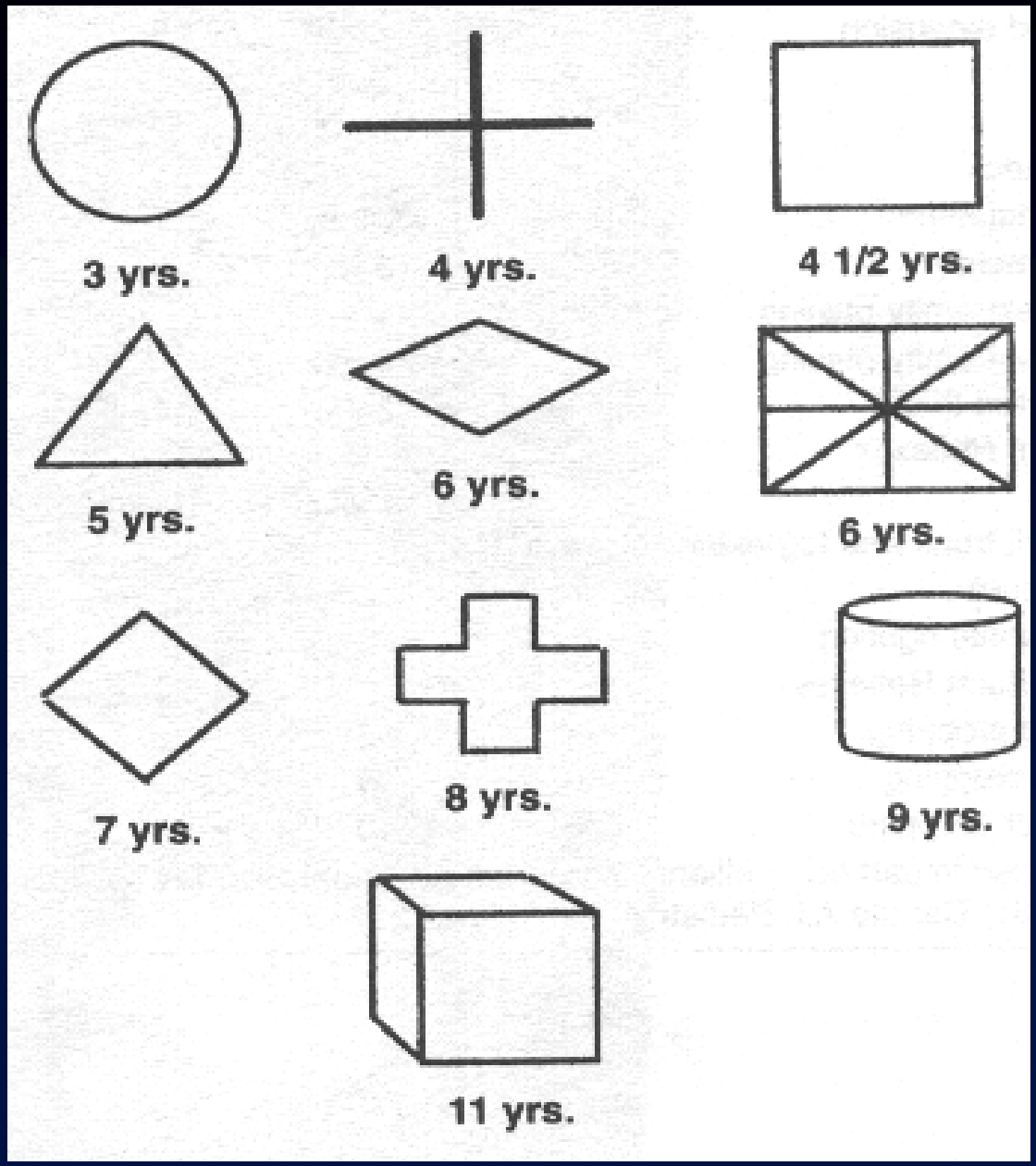
   วาดรูป, พูดคุยกับเด็กโดยตรง:

   ทั่วๆไป, บ้าน โรงเรียน ครู เพื่อนสนิท

   คำถามเชาวน์, **3 wishes,** ไปสวนสนุก, ติดเกาะ

   activity level & attention

   Test of non-verbal intelligence TONI



Gesell Figures

Assessment of school failure

4. ทดสอบตามแบบเรียน ภาษาไทย คณิตศาสตร์
5. School & teacher's report, สมุดพก
6. Standard IQ test, Achievement test

Possible causes of school failure

- Learning disability
- ADHD
- Cognitive deficit
- Sensory impairment
- Chronic illness
- Emotional illness
- Family dysfunction
- Social problems
- Drug addiction
- Ineffective schooling
- Poor motivation
- Etc.

นพ. ทัศนวัต สมบุญธรรม

หน่วยพัฒนาการเด็ก

ภาควิชากุมารเวชศาสตร์

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