

*No matter what language -
no matter what country -
no matter what age -
dyslexia is everywhere.*

European Dyslexia Association



DYSLEXIA 3-LEVEL FRAMEWORK by Utah Frith

Kadi Lukanenok

Kadi.lukanenok@tlu.ee
Tallinn University
Estonian Reading Association

IFLA WLIC 2012 Preconference
Let`s Read! Reading and Print Disabilities in Young People
7-9 August 2012, Tallinn



TALLINNA ÜLIKOOL



Kummits, N. (1938) Lambi valgel
In the Light of the Lamp
Oil on Canvas

National population censuses in Estonia

Literacy: reading and writing

1881 – 42.7%

1922 – 90.6%

1934 – 93.6%

2000 – 99.8%

Excellent results in PISA 2009.

3th position in Europe

10th position in OECD

13th position in world

Current presentation:

1. Brief overview about different theories in dyslexia
2. 3-level framework by U. Frith
3. Some implications

References are available in the end of the show.

Definitions

- **International Dyslexia Association's Board of Directors, November 2002.**

“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 growth of vocabulary and background knowledge.”

- **The social model of dyslexia** emphasises the role of society in limiting those with specific learning difficulties as well as recognising the talents and strengths that are often present.

Different theories about dyslexia

1. The Phonological Deficit Hypothesis
 2. The Double Deficit Hypothesis
 3. General Senso-motor Deficit Hypothesis
 4. Magnocellular Deficit Hypotheses
 5. The Automatisatation Deficit Hypothesis / Cerebellar Deficit Hypothesis
- Different theories present dyslexia at different levels.

Does it seem like that?



"Blind monks examining an elephant"
Hanabusa Itcho (1652–1724)

Different theories about dyslexia

1. The Phonological Deficit Hypothesis
 2. The Double Deficit Hypothesis
 3. General Senso-motor Deficit Hypothesis
 4. Magnocellular Deficit Hypotheses
 5. The Automatisatation Deficit Hypothesis / Cerebellar Deficit Hypothesis
- Different theories present dyslexia at different levels.
 - Need for broader approach:
 - integrate existing theories
 - neutral and more broad framework
 - include environment: culture, education, language, social, economy
 - holistic way
 - social model



Utah Frith theoretical framework consists 3 level:

ENVIRONMENT

BIOLOGICAL

genes, brain
hormonal condition

COGNITIVE

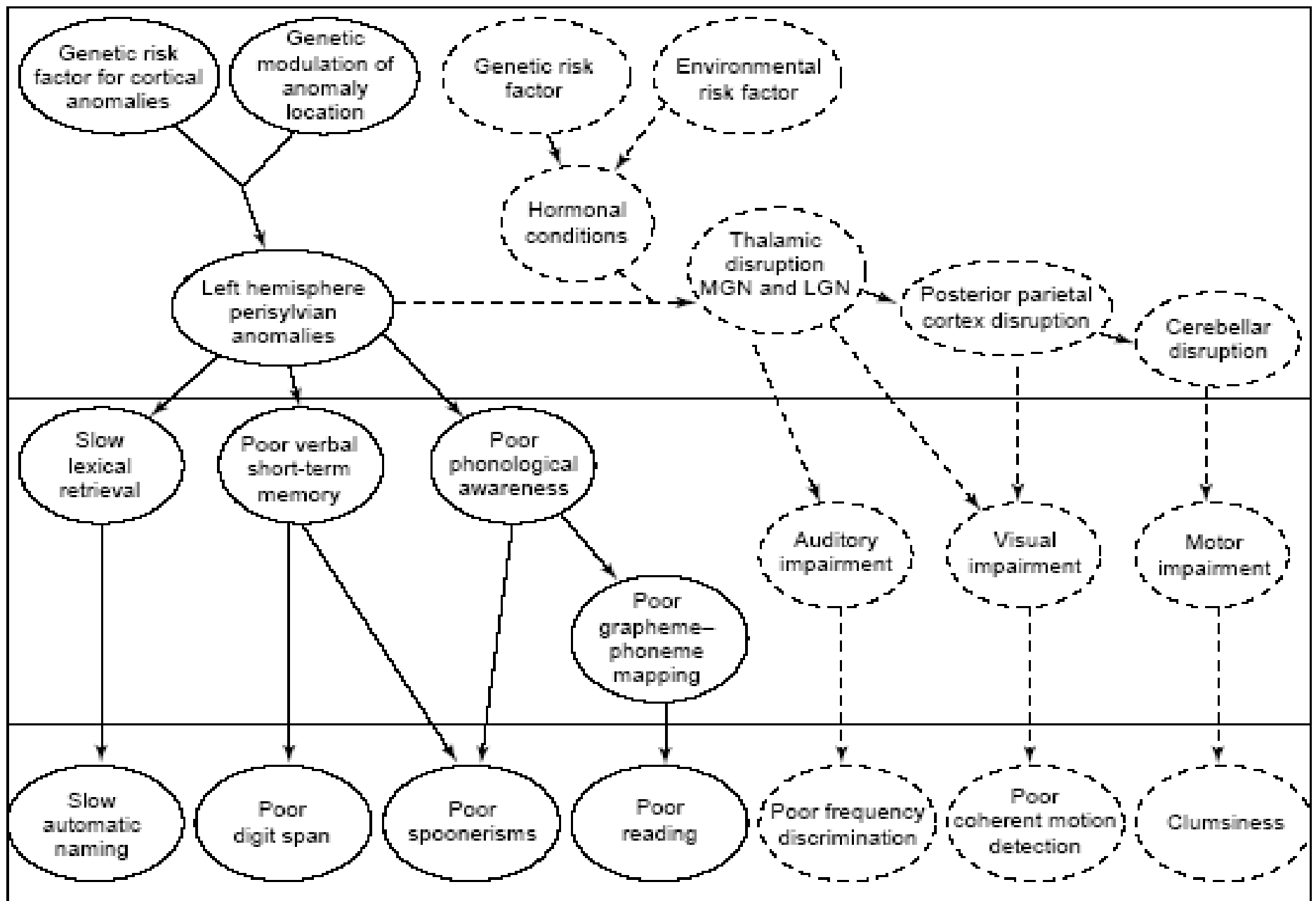
pre-reguistic processes for
reading

BEHAVIOURAL

reading and
related behaviour

- what dyslexia is and what is not
- co-incidences
- remedial and supporting effects
- environmental influences and holistic approach
- suitable to describe developmental diversities





Frith, U., Ramus, F.



TALLINNA ÜLIKOOL

Biological level: genes, brain cortex, laterality

- 1. chromosomes consist missing or malfunctioning genes
- 2. discrepancies in the brain size, structure of functioning, reduced activity
- 3. significantly less magnocells in visual and auditory pathways

COGNITIVE difficulties

1. in multisensory timing processes
2. in automatization, sequencing and timing
3. in processing fast sequencing stimuli
4. in motor and balance, unfluent movements



Cognitive level:

Difficulties in:

- ▶ visual perception → orthography
- ▶ auditory perception → speech perception, phonological awareness → reading skills
- ▶ space and rhythm: speech, writing, movements, kineasthetic and kineatic processes, general and fine motor
- ▶ motor perception and control
- ▶ short term memory, long term memory
- ▶ speech and language:
 - phonological awareness and processing
 - poor alphabet knowledge
 - poor grapheme-phoneme knowledge
 - difficulties in lexical aspects (slow retrieving)
- ▶ poor information procesing
- ▶ poor excecutive functions:
 - automatization, - sequencing, - timing



BEHAVIORAL LEVEL: permanent difficulties in reading

Always:

- 1. poor decoding performance:
omission, addition , substitution of phonological units**
2. poor reading comprehension

Features that may or not may occur:

- ▶ poor naming speed
- ▶ poor speech development
- ▶ grammatical and lexical deficit
- ▶ poor verbal processing: perception, memory
- ▶ poor time estimation
- ▶ poor motor and balance



BEHAVIORAL LEVEL: permanent difficulties in reading

Decoding:

1. Mistakes, beside verbal speech
2. Slow reading process
3. Guessing reading
4. Whole word reading, omitting of the suffixes, postpositions
5. Line losing , word omission

Reading comprehension

1. Imprecise comprehension
2. Difficulties in finding and remembering details
3. Difficulties in learning via reading: new terms, sequences, details, ...

Reading behaviour

1. Avoidance reading activities: games, instruction, subtitles, etc
2. Avoidance loud reading
3. Headache, eyeache, get rapidly tired

NB! Additionally may occur:

Difficulties in self order, self managing, planning, putting priorities, finalising and promoting

All this (may) have impact on personal development, self esteem, socialisation, ...



Only weaknesses? Do dyslectics have any strengths?

Good or excellent:

- Non-verbal abilities
- Visual abilities
- Spatial abilities
- Alternative thinking
- Curiosity, creativity
- Intuitivity
- Whole world, whole language approach
- visual problem-solving
- Mind mapping
- Social skills

as resources for future education, social coping

They rather listen than read,
rather speak than write.



Getting close to environmental level, social aspects and holistic approach

- Current situation

instead *What is dyslexia*

current question is *Where is dyslexia?*

- Answer is:
*Dyslexia is in value judgements, attitudes,
measurements, assessments,
in environment, in society*

Environmental level and holistic approach

The role of environment and society:

- Access to services
- Flexible arrangement of services, universal design
- IQ versus the other options
- Beside weaknesses identify and handle strengths
- Impact of the new visual media and ICT, advantage for dyslexic people

Library as option to practice and master learned literacy and social skills

What we can do?

1. Little or few accommodations in environment and print presenting: text and pictures, size, color, font
2. Alternative methods (non verbal) in information presenting, communication
3. Appreciate every readers even small advantages
4. Trust your readers
5. Avoid learned helplessness
6. Make safe and enjoyable atmosphere
7. Be creative to combine different methods, ways.

In more concrete way

Arrangement

1. Introduce your library rules, make it visible in different way
2. Devide the information (written and spoken) into smaller pieces
3. Structure the information, devide the information into clear blocks, provide unambiguous start and final.
4. Use unambiguous sentences, support by body language
5. Provide time to react and reflect the information for readers.
6. Be sure that reader understands and attains
7. Find out and remove obstacles as much as possible

In more concrete way

Texts

1. Available handouts
2. Emphasise important pieces especially: size, color
3. Devide long text into smaller pieces
4. Use fonts Calibri, Arial, **Comic Sans**, Verdana
proper size, colors, background color, dark text in bright field
5. Use plain language (if needed)



Dyslectic librarians – is it possible?!

- Statistics 5-15% of population
- Identified or not
- Personal experiences in life, in professional carrier
- Let`s them talk!

- Main authors:
- Frith, U., Ramus, F.
- Ahonen, T., Bacon, A., Bennett, J., Boets, B., Deponio, P., Fawsett, A., Gyarmathy, E., Lyytinen, H., Nicolson, R., Pennington, B., Powell, Price, T., Reid, G., Shapiro, H., Snowling, M., Stanovich, K., Torgesein, J. K., Wolf, M.
- Galaburda, A., Lundberg, I., Miles, T.



The aims of the current presentation:

- Introduce dyslexia framework which provides broad and different theories integrated approach
- Present that originally biological problem has lot of different solutions
- Look at the solutions in the environment, in library situation

If we know more, we can do more and on the better way.

Let`s do that!

ESTONIAN READING ASSOCIATION EESTI LUGEMISÜHING

www.lugemisyhing.ee

- Founded in May 1992
- More than 200 members
- Members: university professors, students, school principals, teachers, in-service trainers, kindergarten teachers, special educators, speech therapists, editors, librarians, etc.
- Associated member of the International Reading Association (IRA) from April 1993
- Member of the International Development in Europe Committee (IDEC) of IRA, leader Meeli Pandis
- 13th European Reading Conference in Tallinn in 2003

Handouts and poster are available in foyer. Please!



Thank you!