Cogmed training with dyslexic children

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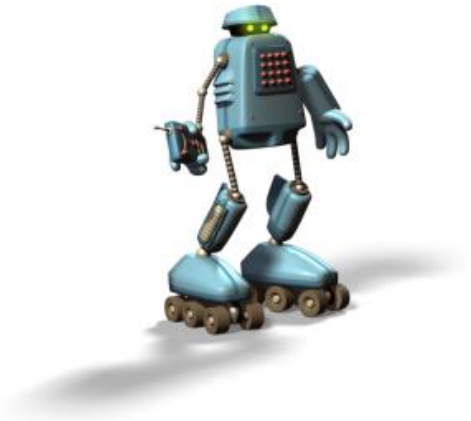
November 2012



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Dyslexia in the Netherlands

Failing automatization of letter knowledge and reading in grade 1 and 2:

- ✓ Extended instruction in the classroom;
- ✓ Remedial teaching outside the classroom (one-to-one or in small groups);
- ✓ After two or three periods of failing automatization (weakest 10%) in spite of extensive intervention a child is referred to health care;

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Dyslexia in the Netherlands

- ✓ In dyslexia clinics analysis of the reading problems takes place by psychological examination
- ✓ When severe dyslexia is diagnosed, dyslexia treatment is indicated

Paid by health care insurance

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Psychological examination

Issues of examination:

- ✓ IQ;
- ✓ Reading and spelling level;
- ✓ Phonological processing;
- ✓ Rapid naming;
- ✓ Working memory;
- ✓ Long term memory.

Executive functions, attention and social-emotional well-being are assessed by questionaires filled by parents and teacher.

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Dyslexia treatment

- ✓ Intensive reading and spelling instruction by a dyslexia specialist once a week on a one-to-one basis;
- ✓ Home assignments to be rehearsed four times a week;
- ✓ Evaluation of reading and spelling level every three months;
- ✓ Mean period of treatment 40-60 weeks.

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Problem definition

A small group of dyslexic children makes insufficient progress in spite of dyslexia treatment.

Hypothetic causes: cognitive functions like:

- ✓ Attention;
- ✓ Working memory;
- ✓ Executive functioning.

} "frontal lobe functions"

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Objective

Is it possible to treat working-memory deficits in dyslexic children by a Cogmed working-memory training, in order to increase efficiency of dyslexia treatment?

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Implementation of Cogmed

- ✓ After psychological examination, children with low central executive scores are referred for Cogmed working memory training (in case of parental consent);

- ✓ Working memory training starts five weeks before start of dyslexia treatment.

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Research design

60 participants, split up in 3 groups:

- ✓ Experimental group:

  Cogmed Robomemory (adaptive training)-> dyslexia treatment

- ✓ Placebo control group:

  Cogmed Megamemory (non-adaptive training)-> dyslexia treatment

- ✓ No treatment control group:

  Dyslexia treatment

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Results

Premeasurement (psychological examination)

Postmeasurement (after RM/MM/-)

Check-up of reading and spelling level every three months of dyslexia treatment

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First results

- ✓ MM and RM groups appear to make equal gains in working memory tasks and nonverbal reasoning

WMTB-C digit recall			
	mean pretest	mean posttest	n
RM	22.9	25.7	20
MM	21.6	23.3	17

F= 2.747; p=.106

WMTB-C baclward recall			
	mean pretest	mean posttest	n
RM	8.0	7.7	20
MM	12.3	11.0	17

F= 1.537; p=.223

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First results

WMTB-C block recall			
	mean pretest	mean posttest	n
RM	24.3	32.6	20
MM	24.2	28.8	17

F= 1.876; p=.180

WNV matrix reasoning			
	mean pretest	mean posttest	n
RM	19.0	19.6	19
MM	18.7	19.8	16

F= 0.000; p=.992

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Future results

- ✓ Gains in working memory tasks of training groups (Robomemory and Megamemory) compared to no-treatment control group;
- ✓ Results on reading and spelling after 3, 6, and 9 months of dyslexia training, Robomemory, Megamemory, and no-treatment control group compared.

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Issues concerned with implementation of Cogmed

- ✓ Fit in track of activities within the existing system;
- ✓ Waiting lists for dyslexia treatment;
- ✓ Parental consent (effort & time needed!);
- ✓ Practical scheduling of appointments: time and location;
- ✓ Technical problems (Apple!).

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Questions?

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