Reading curriculum-based measurement: Screening Portuguese students at risk for dyslexia

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RATIONALITY: In Portugal the field of **Specific Learning Disabilities** is **characterized** by a **lack of a technically adequate system of school-wide screening** and progress monitoring that can promote an early identification of students at risk for reading disabilities (Martins, 2006).

PURPOSE: To analyse the use of **Curriculum-based measurement** (CBM) (Deno, 1985) in reading as a universal school screening system that promoted an early identification of third grade students **at risk for dyslexia**.
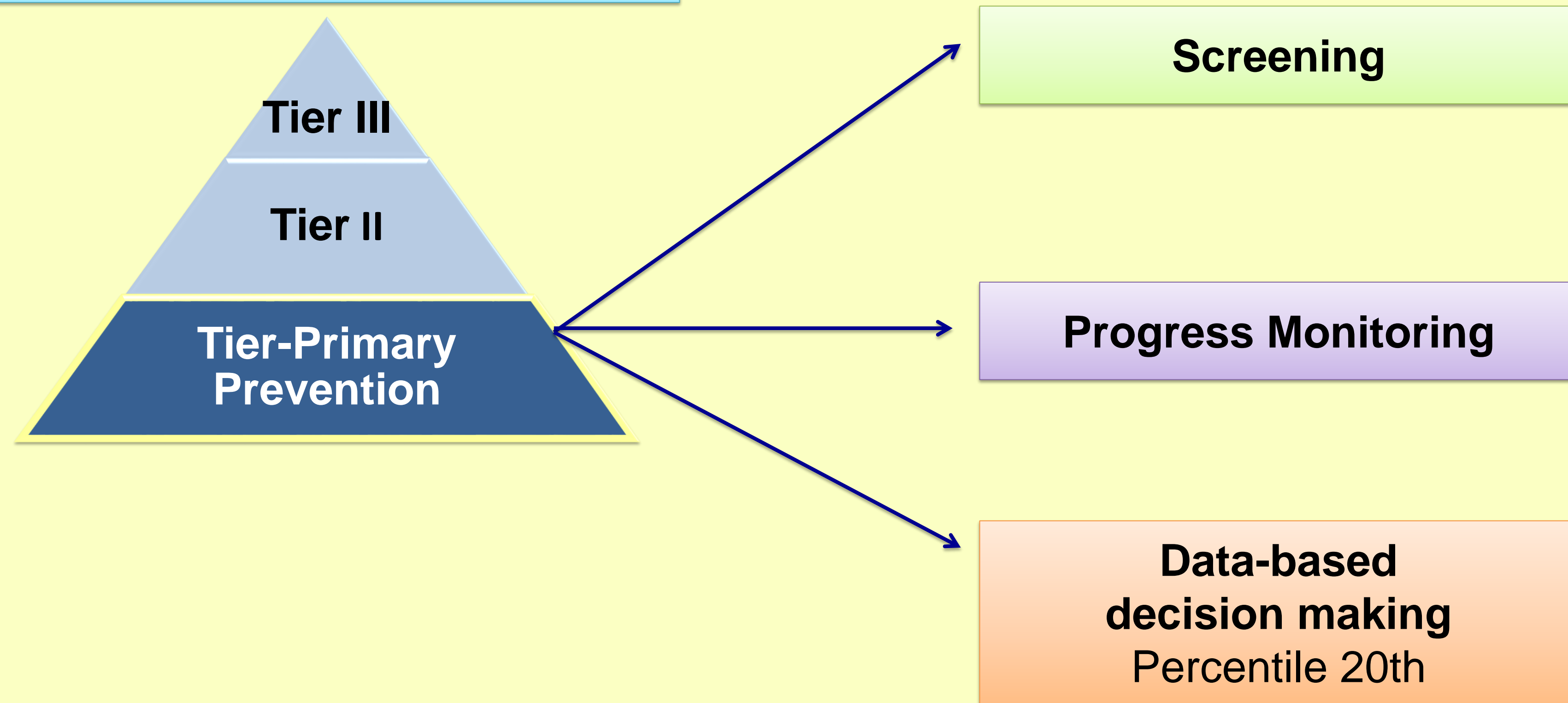
GOALS:
- To test the administration, quotation and technical adequacy of a Portuguese CBM-Maze probe;
- To analyze the use of a CBM-Maze probe in universal screening for third grade students;
- To analyze the risk factors that were present in students identified at risk for dyslexia.

METHODOLOGY: Quantitative research.
Data analysis: Descriptive and inferential statistics.

Sample: 82 third grade students (8 years old) from a school cluster in the north of Portugal.

Girls	Boys
47 (57,3%)	35 (42,7%)

Data collection instruments: A CBM-Maze probe used three times a year within **five Scoring Procedures (SP):**
1- Correct maze choices (CMC) minus Incorrect maze choices (IMC)
2- CMC with interruption after two consecutive errors
3- CMC with interruption after three consecutive errors
4- CMC-½IMC
5- CMC
Students considered at risk were those with results below the **20th** percentile (Deno et al., 2009).

Multi-level prevention system

Tier III
Tier II
Tier-Primary Prevention

Screening

Progress Monitoring

Data-based decision making
Percentile 20th

RESULTS:

- A higher number of true positives (the ones who were at risk in all data collection moments) were identified with the score procedures CMC-IMC and CMC-½IMC;
- Test retest reliability analysis shows that values of Person´s correlation ranged from 0.647 to 0.831.

SP: CMC with interruption after three consecutive errors
- **Reading comprehension level:** Autumn: 9.4 (DP= 4.0); Winter: 14.7; (DP= 6.3); Spring:15.9 (DP= 5.9);
- **Annual growth rate**: 0.27 (DP= 0.16);
- At the end of the third grade **girls performed better** (M= 16.23) than boys (M=15.66);
- **Ten** students were considered at **risk throughout the whole school year**;
- At the end of the third grade **students who have been at risk throughout the year** performed two times lower (M= 8.30; Annual growth= .18) than the ones who were **never at risk** (M= 18.91; annual growth= .32).

Risk Factors: Articulation problems; Delay in language development; Absence of reading experiences.

CONCLUSIONS:
1) The Maze probe received excellent acceptance among both teachers and students, although it was used in the district for the first time;
2) Results obtained with the CBM-Maze probe are reliable independently of the scoring procedure used.
3) Girls presented a higher average value than boys, though the difference is not statistically significant.
4) The mean results from students who were never at risk was significantly higher than the mean results from those of students who have been at risk throughout the year;
5) The annual growth rate of students who were never at risk was significantly higher than the growth rate of students who were at risk throughout the whole year;
6) The Matthew effect was visible in our results when we compare students at risk with those not at risk;
7) The articulation problems, delay in language development and the absence of reading experience in pairs with their parents stand out as reading risk factors in students with scores below 20th percentile.
In the future it is necessary **to implement intervention programs at the secondary and tertiary levels** as recommended by the research within the Response to Intervention model.

REFERENCES:
Deno, S. L. (1985). Curriculum-based measurement: The emerging alternative. *Exceptional Children*, 52(3), 219 – 232.
Deno, S. L., Reschly, A.L., Lembke, E.S., Magnusson, D., Callender, S.A., Windram, H., & Stachel, N. (2009). Developing a school-wide progress-monitoring system. *Psychology in the Schools, 46 (1),* 44-55.
Martins, A. P. L. (2006). *Dificuldades de aprendizagem: Compreender o fenómeno a partir de sete estudos de caso.* Tese de Doutoramento não publicada, Universidade do Minho, Braga, Portugal.