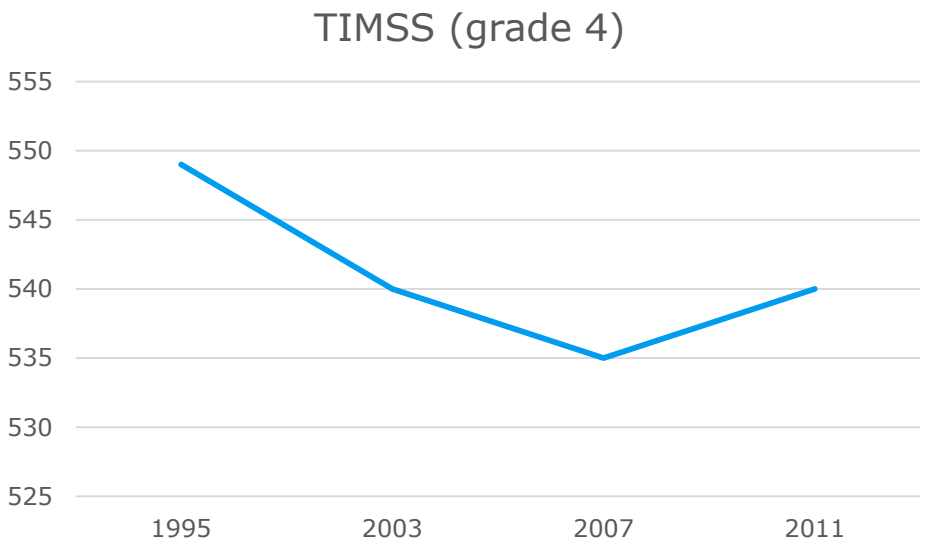
rijksuniversiteit groningen
faculteit gedrags- en maatschappijwetenschappen

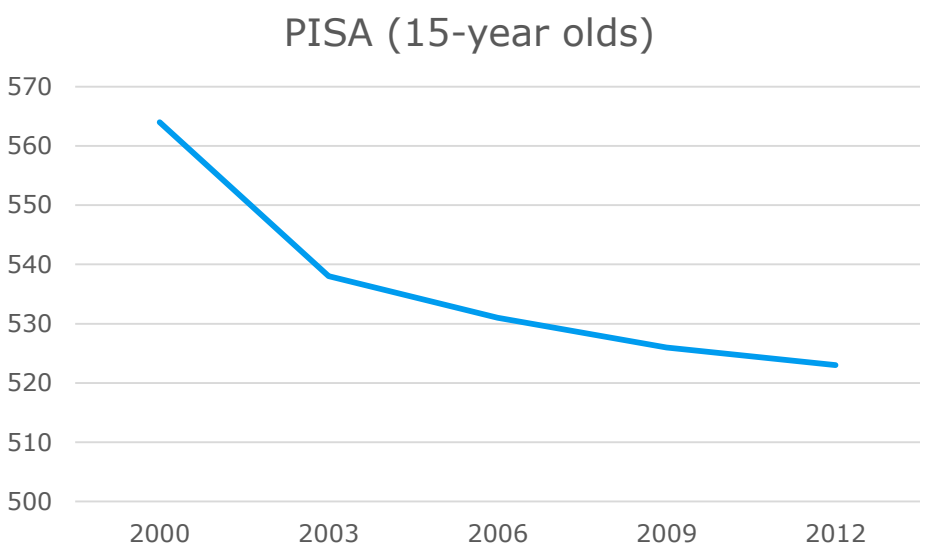
On the relevance of (more) data-based decision making in education

Success for All in the Netherlands Foundation

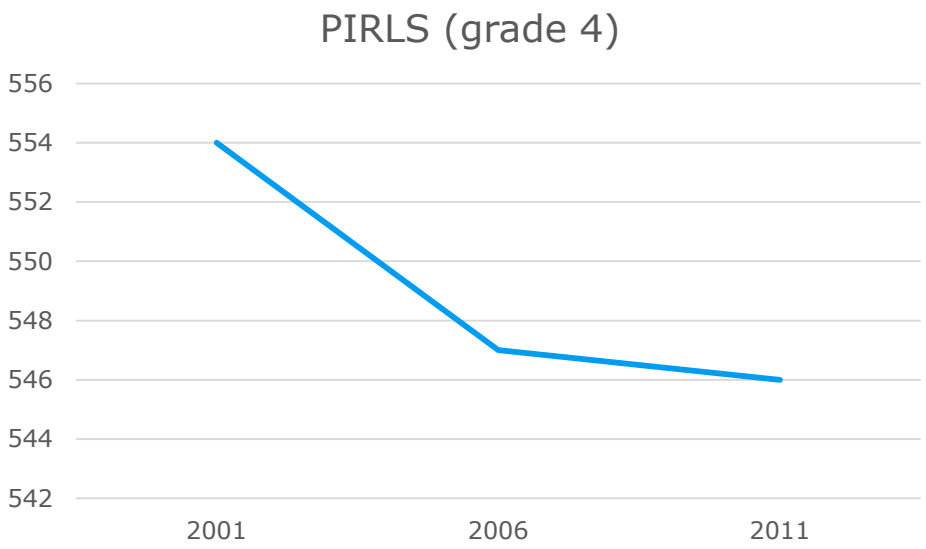
Adrie Visscher

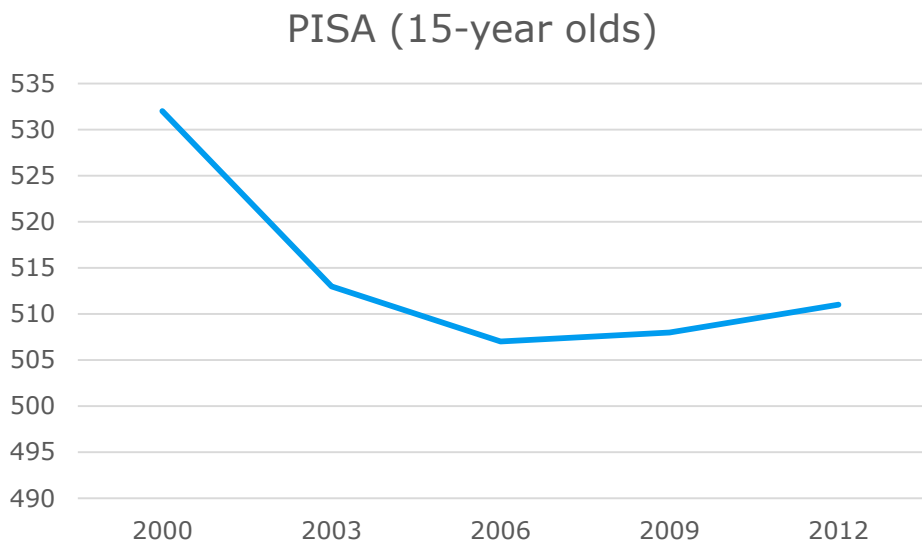
TIMSS & PISA performance NL *mathematics*





PIRLS & PISA NL *reading comprehension*





Just as important …

- 1.300.000 Dutch people: low reading literacy levels (1 in every 9 between 16 & 65 year)

- 65% of them is Dutch native

Program

a) Data-based decision making as a concept

b) The effectiveness of DBDM

c) Future research

d) Three recommendations

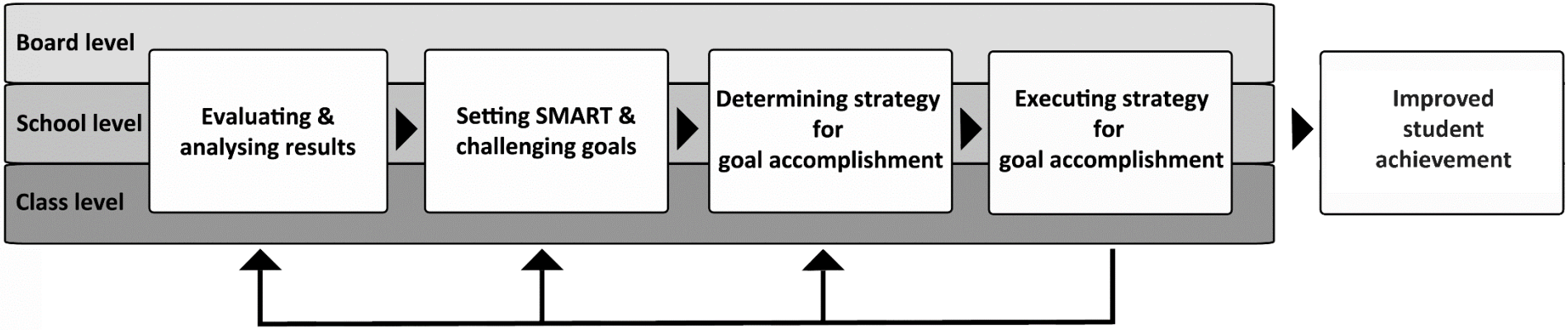
DBDM, what's in a name?

- "*Using evidence of achievement to adapt what happens in classrooms to meet learner needs.*" (Dylan Wiliam)

- Maximum performance of **ALL** students

DBDM, what's in a name?

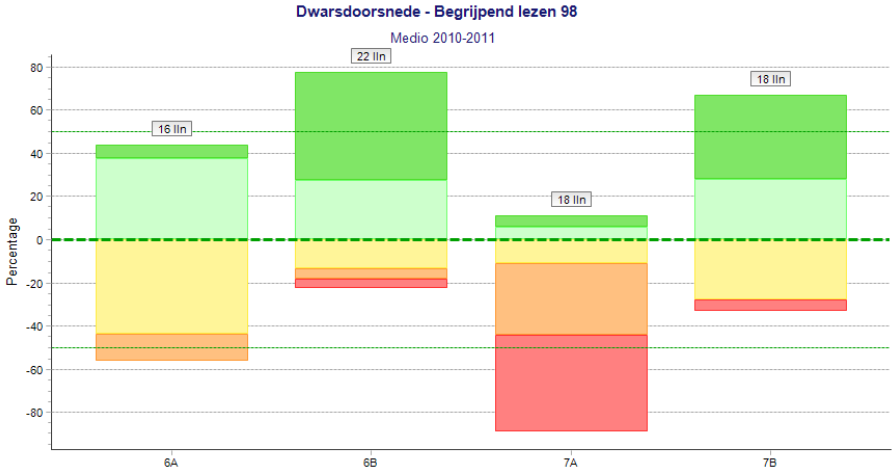
Systematic approach, also at the school and school board level

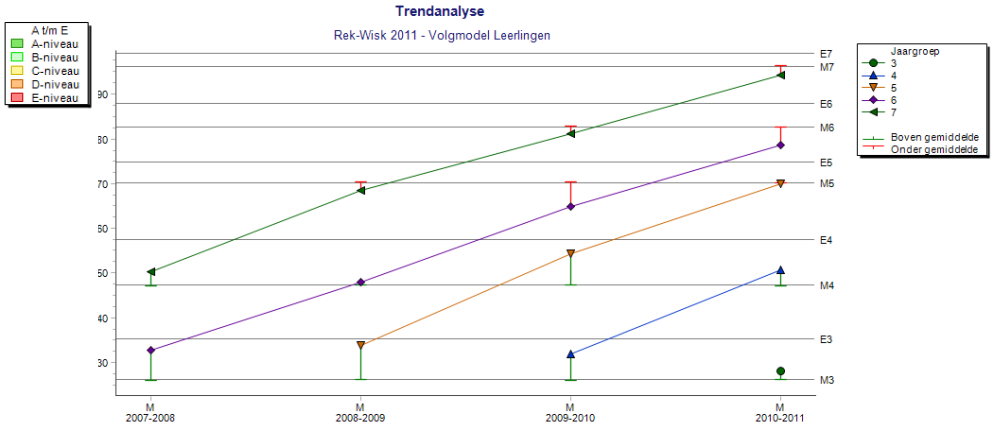


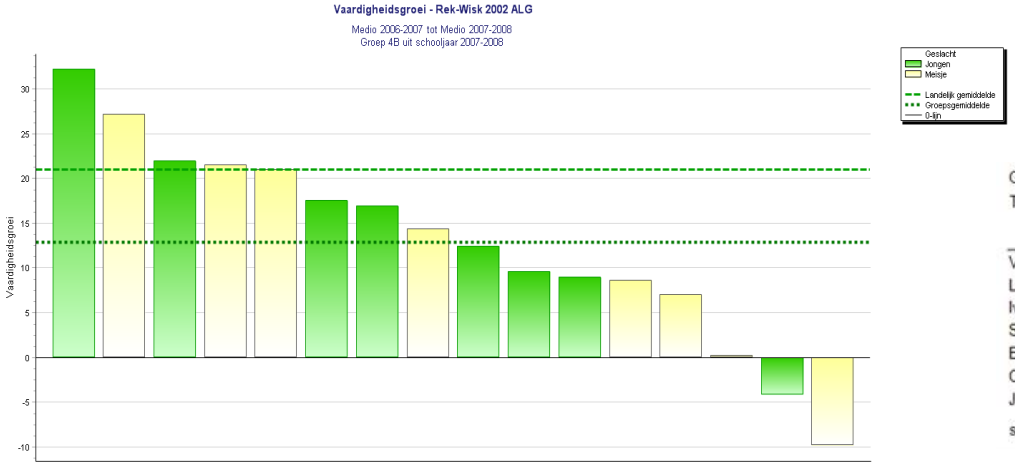
Van Geel, Keuning, Visscher & Fox, 2016

van Geel, M., Keuning, T., Visscher, A. J., & Fox, J. P. (2016). Assessing the effects of a school-wide data-based decision-making intervention on student achievement growth in primary schools. *American Educational Research Journal*, 53(2), 360-394.

Examples student monitoring system output







Groep: 5 - 5B
Toets-taak: Rek-Wisk 2009 - E4

	Toetsscore		Signaal	GET s%	GET afw	O&A s%	O&A afw	V&D s%	V&D afw	MTG s%	MTG afw
Veerle Lucassen	56	C	Niet opvallend	78	+3	64	-2	71	+10	48	-21
Lejla van Motmar	43	D	Opvallend	65	+8	38	-4	48	+15	12	-32
Ivo Notermans	64	B	Niet opvallend	84	0	85	+7	76	-1	73	-8
Sheswin Ozturk	52	C	Niet opvallend	73	+2	51	-8	59	+6	61	-1
Bart Vissers	56	C	Niet opvallend	78	+2	57	-9	73	+11	58	-12
Carlijn Widdershoven	55	C	Zeer opvallend	57	-18	72	+7	84	+24	30	-38
Jordy Wiekken	63	B	Niet opvallend	86	+3	74	-3	73	-3	88	+7

s% = Percentage score geobserveerd, afw = Percentage score afwijking

Which subject matter components mastered?

Groep: 5 - 5B

Toets-taak: Rek-Wisk 2009 - E4

	Toetsscore		Signaal	GET s%	GET afw	O&A s%	O&A afw	V&D s%	V&D afw	MTG s%	MTG afw
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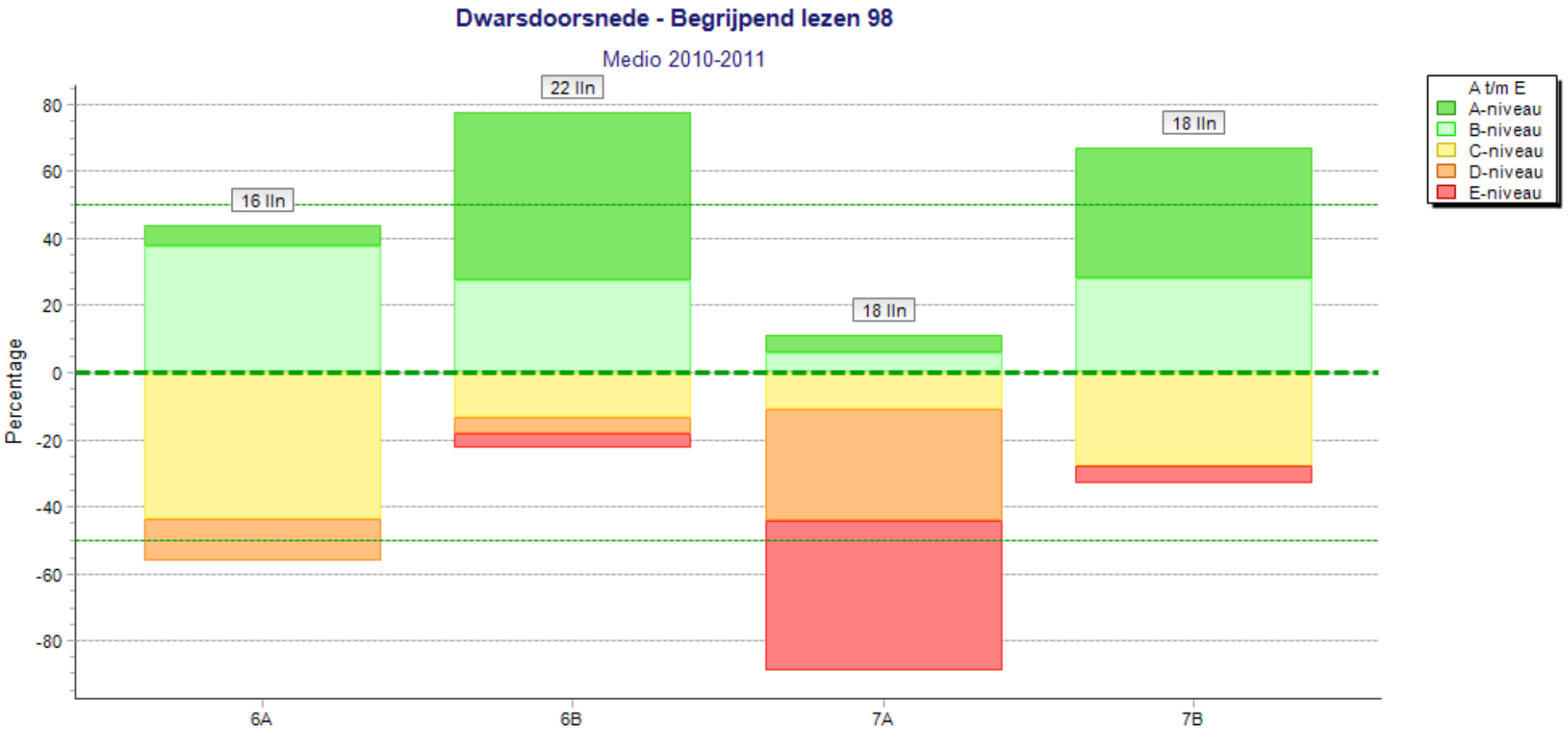
Performance of the classes in a school compared with the national average



Effectiveness DBDM: theoretical foundation

Scientific proof that the core components of DBDM CAN improve performance:

- Goal setting
- Feedback

Success for All: DBDM within a total package

Effectiveness DBDM: goal setting, howe does it work?

SMART & challenging goals:

- more goal-oriented behaviour
- more effort
- more search for effective strategies

Within the limits of:

goal commitment, task complexity & competences

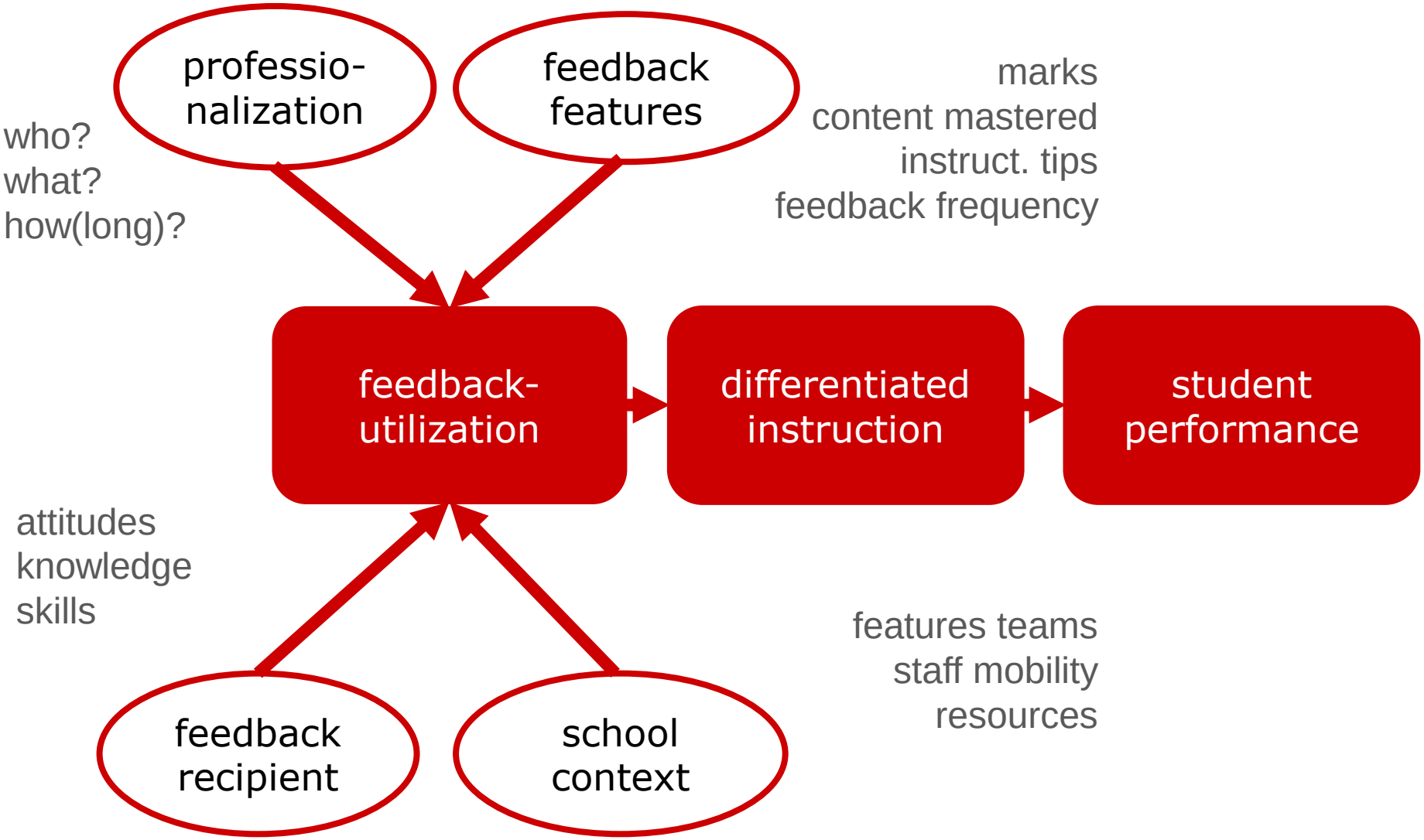
Goal setting combined with feedback ⇨ larger effects than the sum of the effects of each of them

Effectiveness DBDM: feedback, how does it work?

Also in the case of feedback performance improvement effects are not self-evident

Various factors play a role here

Factors affecting feedback utilization



Effectiveness DBDM

Fromt the general theoretical principles to

the effects of specific operationalizations of

those principles within the context of DBDM

Results six NL intervention studies: the Streef and Focus projects

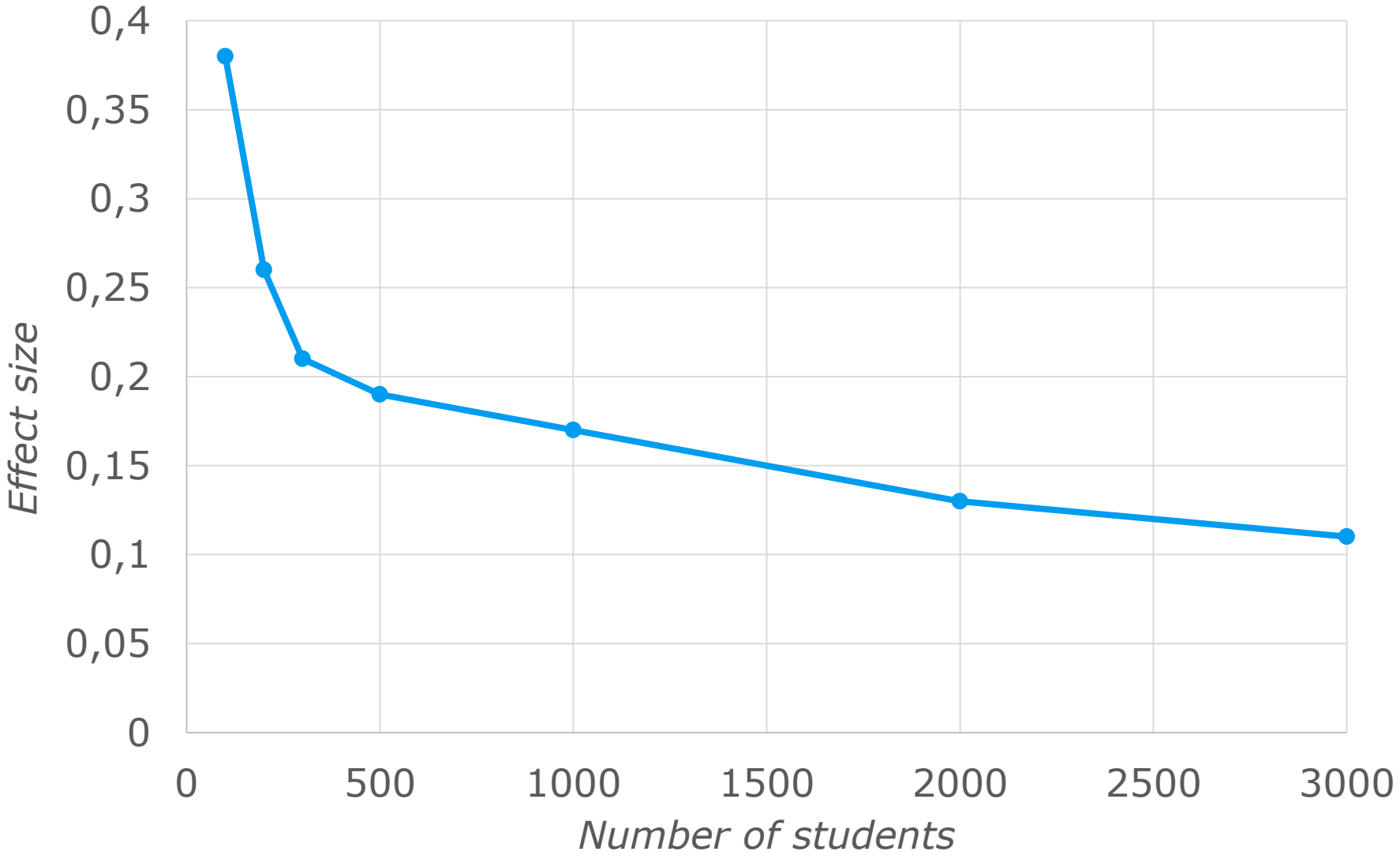
- In four studies positive effects on student achievement: for reading comprehension, mathematics, spelling

  ⇨ .37 ES & 1 to 2 months gain on independent test

- For specific grades (grade 4; grade 4+5) and also on average for grades 1-6

- Small scale (420–673 students) & large scale (4000–7500 students)

Relationship intervention effects and implementation scale (Cheung & Slavin, 2015)



Results six NL intervention studies: the Streef and Focus projects

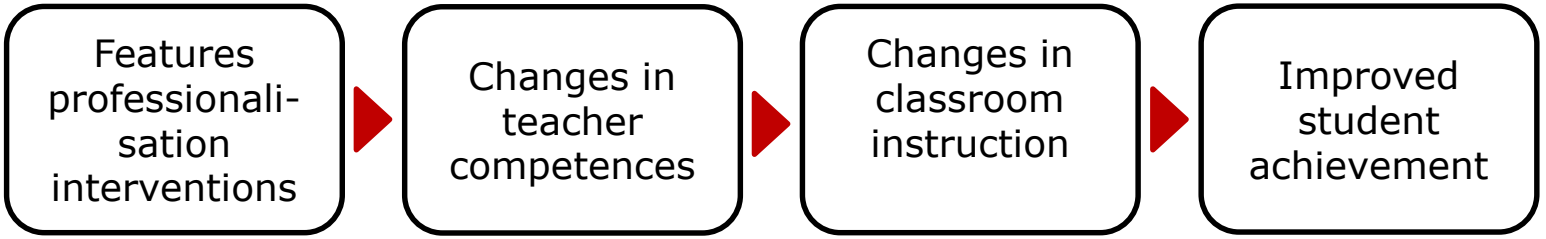
- Analysis and interpretation achievement data can be trained well
- Student achievement effects as a result of goal-oriented and hard work based on insight into student progress
- Much more difficult: translating achievement data in 'remedies', planned on paper and executed in the classroom presuposes much
- Differentiation: still limited; quality?

How to train for complex DBDM activities?

- *"Too much left to be filled in by practitioners" (Cohen en Ball, 2001)*
- Danger of 'business as usual' in the classroom
- Clear definitions desired competences required
- Task analysis of those competences: which (non-) routines and problem solving appproaches
- Train teachers based on task analyses results

Future research

- Not just acquire competences, also stop habits
- Not everything can be done by means of interventions!
- A theory of action is important:

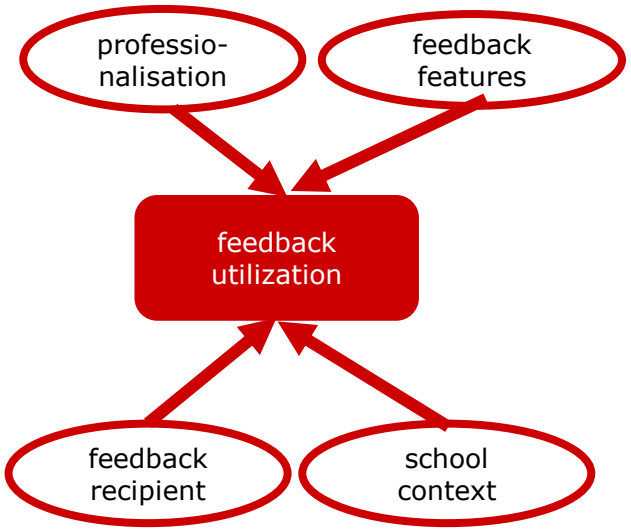


Desimone

- Explanations of effects and input for new interventions

Future research: rapid feedback and differentiation training

- Next to student monitoring system feedback also 'rapid' feedback to teachers
- Equip teachers for differentiation in trajectories with a strong learning-psychological basis (4C/ID)



Future research into differentiation

- Gion/University of Groningen

DBDM and differentiation within Success for All

- Lerarenopleiding Gion/University of Groningen

International comparative study

- Three projects by Maastricht University, Schools Inspectorate, University of Twente

Cognitive task analysis of differentiation with 4C/ID, training design and evaluation results

Recommendation 1:
Accomplish the government goal!

"In 2018 90% of all Dutch primary schools meets all DBDM indicators"

1. use student monitoring system
2. use curriculum tests for instruction planning
3. describe and en evaluate students with special needs
4. quality care student achievement
5. evaluation teaching process (1 per 4 years)

For manyyears: only 25%-25% of all primary schools do this.

Recommendation 2:
Evidence-based teacher professionalization

Billions of dollars for teacher professionalization

Schools should only participate in DBDM professionalization trajectories that have proven positive effects on student achievement.

Recommendation 3:
Modernize teacher training institutes

- The use of (new) forms of feedback
- The 'easy' aspects: generate and interpret data
- The difficult aspects: competences for differentiation by means of this feedback

Thank you very much!