UNIVERSITY OF TWENTE.

Data-driven Teaching and School Management

Adrie Visscher
University of Twente
The Netherlands

West-Terschelling
Dokkum
Delfzijl
Emden
Stiens
Buitenpost
Zuidhorn
Groningen
Leeuwarden
Franeker
Drachten
Roden
Haren
Hoogezand
Veendam
Bolsward
Sneek
Oosterwolde
Heerenveen
Assen
Wolvega
Den Oever
Schagen
Emmeloord
Meppel
Hoogeveen
Emmen
Heerhugowaard
Hoorn
Alkmaar
Kampen
Coevorden
Lelystad
Zwolle
Purmerend
IJmuiden
Haarlem
Amsterdam
Vriezenveen
Nordhorn
Hoofddorp
Amstelveen
Epe
Almelo
Deventer
Katwijk aan Zee
Hilversum
Apeldoorn
Enschede
Amersfoort
Zutphen
Gronau (Westfalen)
Wassenaar
Leiden
Maarssen
Zeist
Zoetermeer
Den Haag
Utrecht
Ede
Ahaus
Veenendaal
Delft
Gouda
Coesfeld
Vlaardingen
Rotterdam
Tiel
Ridderkerk
Borken
Hellevoetsluis
Spijkenisse
Gorinchem
Dordrecht
Oss
's Hertogenbosch
Dorsten
Oosterschelde
Oosterhout
Tilburg
Wesel
Recklinghausen
Roosendaal
Breda
Dinslaken
Bottrop
Middelburg
Goes
Oberhausen
Bochum
Eindhoven
Helmond
A
B

Data-based decision-making; what are we talking about?

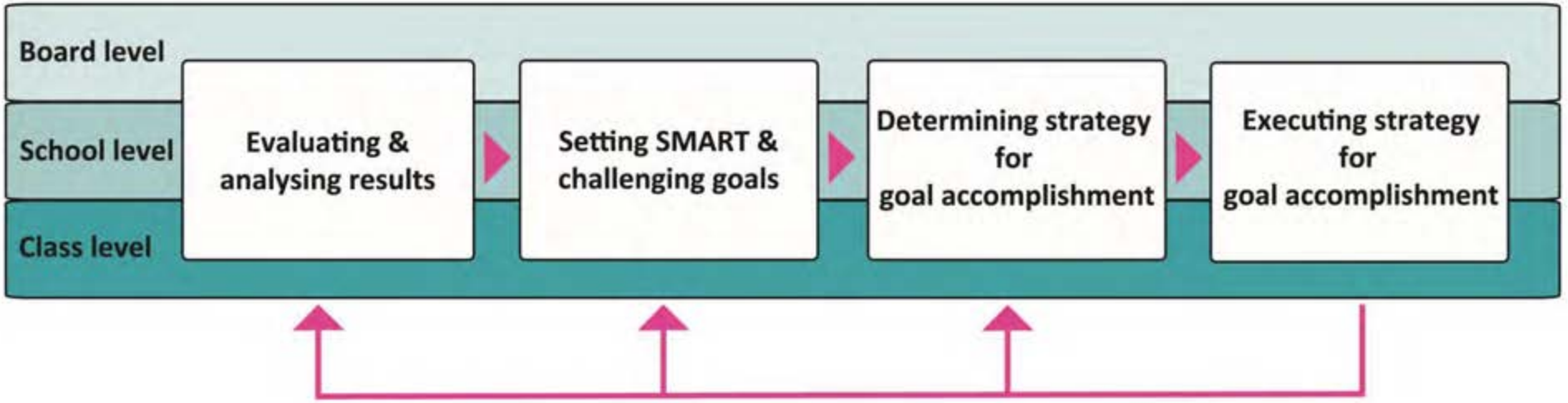
Relevant quality data,

analysis & diagnosis of problems,

formulating (improvement) plans deliberately,

execute them, and evaluate their effects.

The levels and links in data-based decision-making

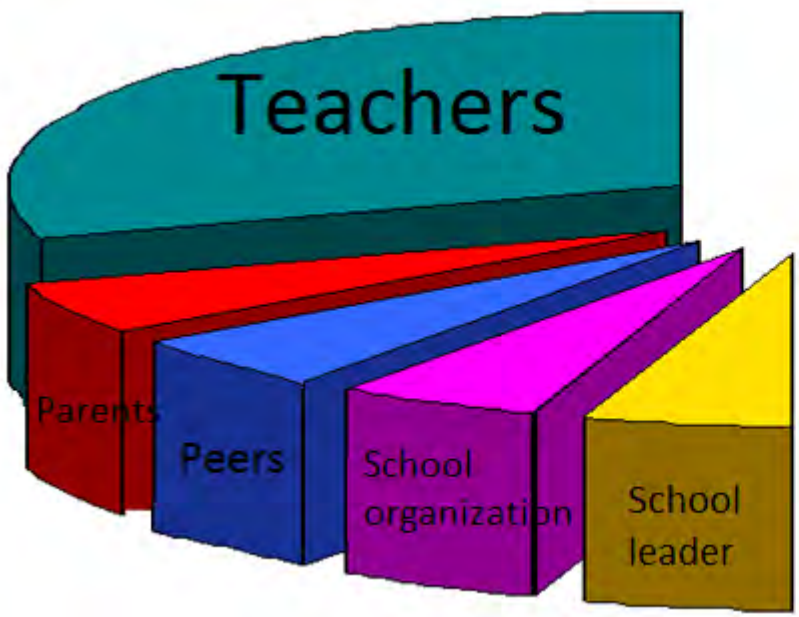


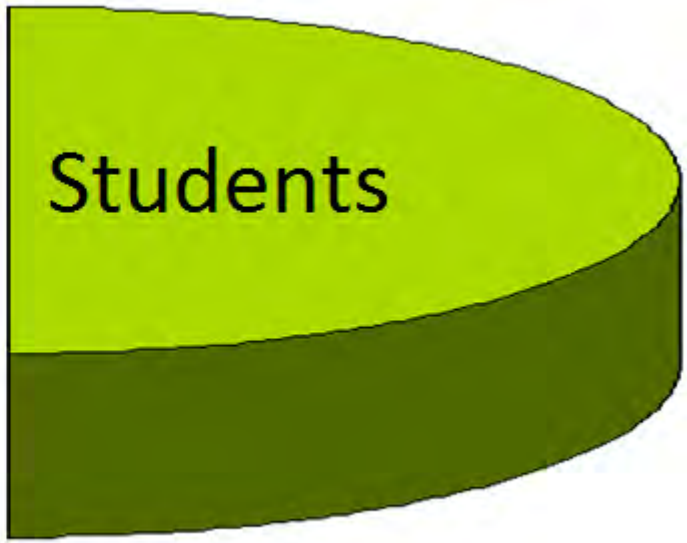
Data about what??????

Which data are especially valuable

for maintaining school quality???

Sources of student performance differences (J. Hattie)





We need to focus on classrooms, not on schools (D. Wiliam)!!

- In the UK, variability in performance at the classroom level is for example four times that at school level.
- As long as you go to school, it does not matter that much which school you go to.
- But it matters very much which classroom you are in.

Teacher evaluation: does it exist?

Very little evaluation of…:

- …teachers' added value.
- …teacher related factors that may cause observed student performance levels.
- …how a teacher's performance may be improved.

The first DBDM-component: analysing the relevant data

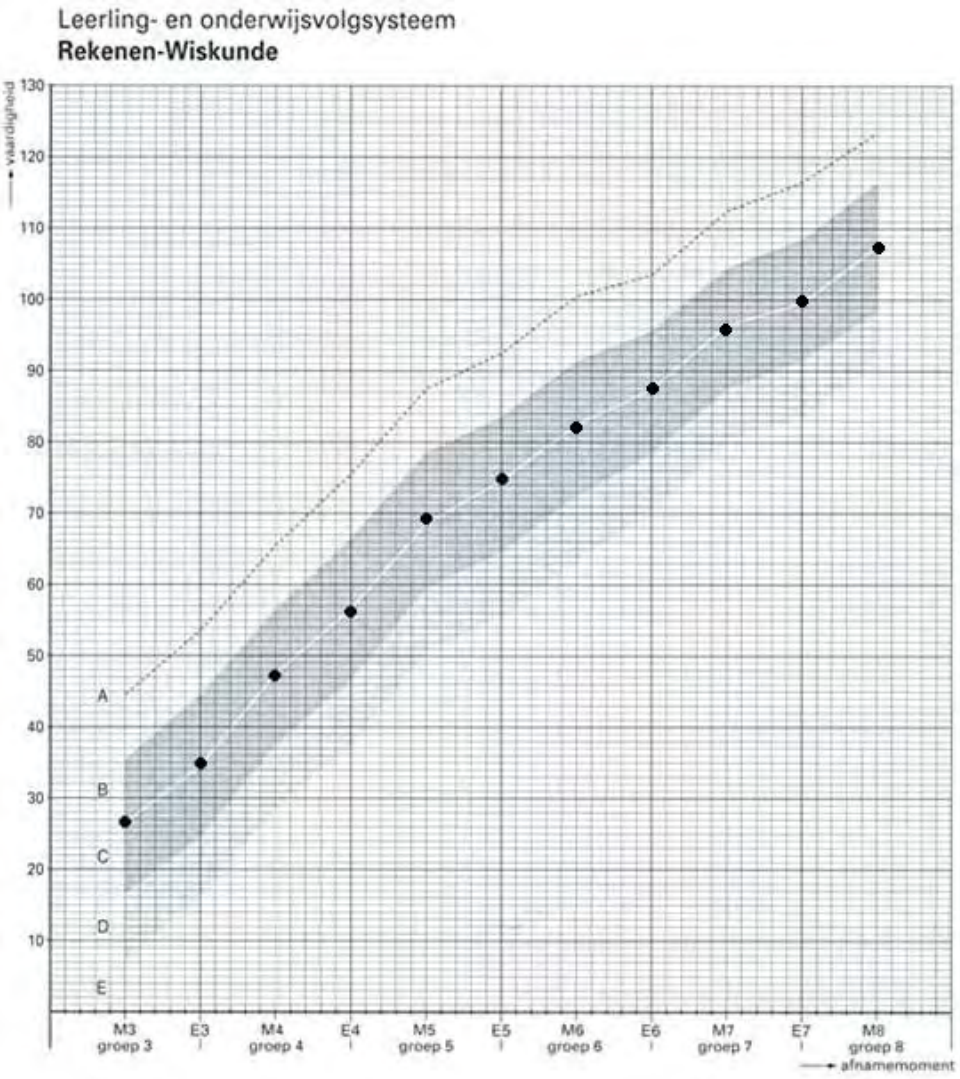
Data on the process and output of classrooms

Combining:

- teacher achievement gains (value added)
- classroom observations
- student perceptions of educational quality

Data on the output/results of classrooms

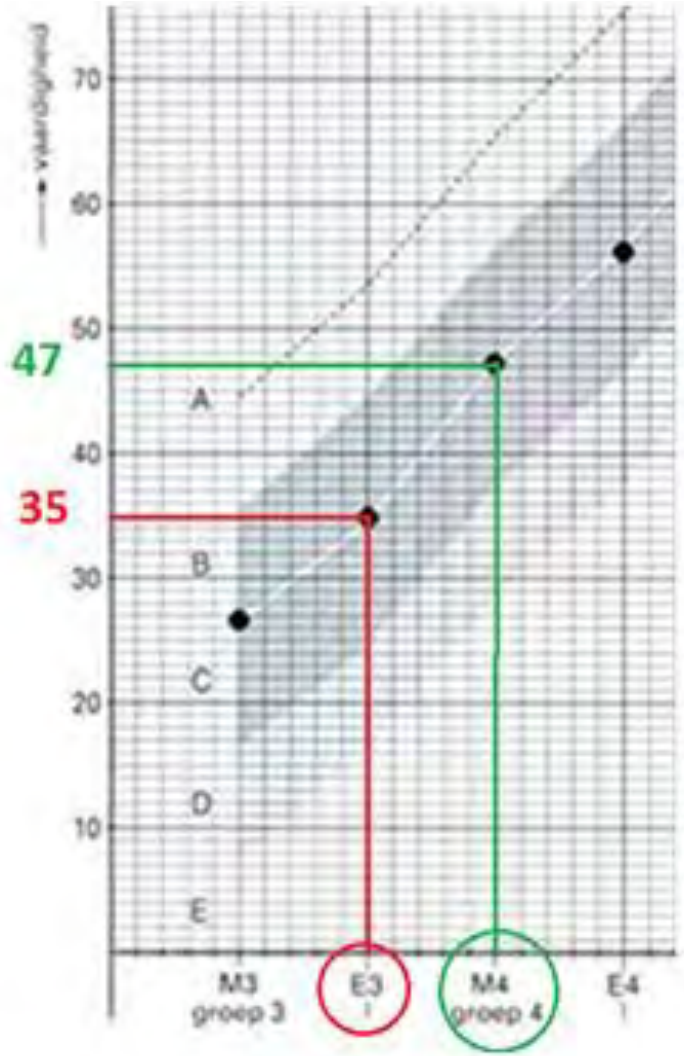
Ability growth in primary schools



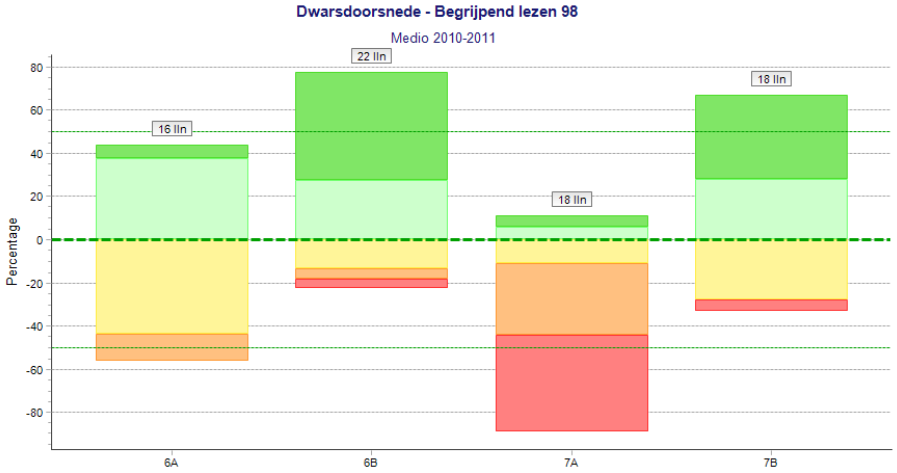
- Gemiddelde vaardigheidsscore E3 = 35
- Gemiddelde vaardigheidsscore M4 = 47

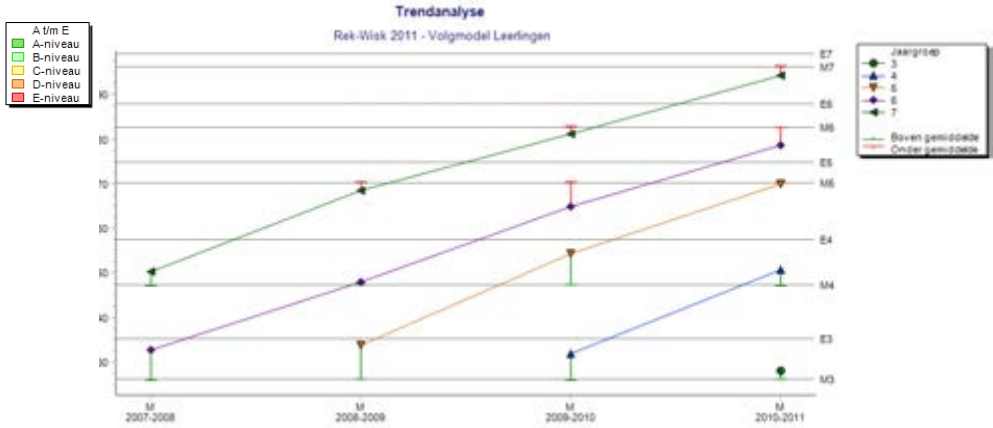
- Dus: de gemiddelde vaardigheidsgroei tussen E3 en M4 is 12 punten.

Quality data on student progress (value added)



Various analyses of student performance



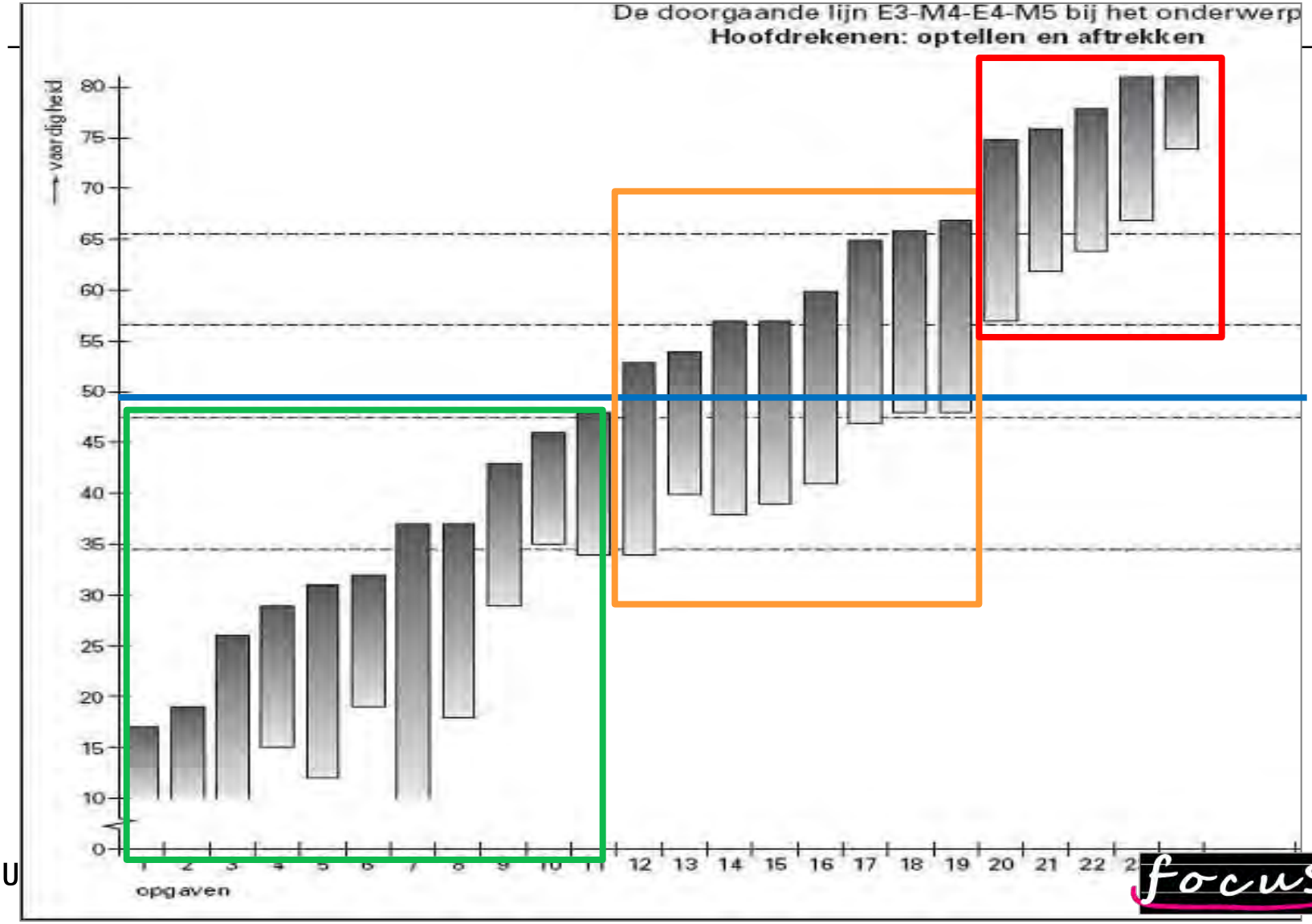


Groep: 5 - 5B
Toets - taak: Rek-Wisk 2009 - E4

	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

Content mastered by students

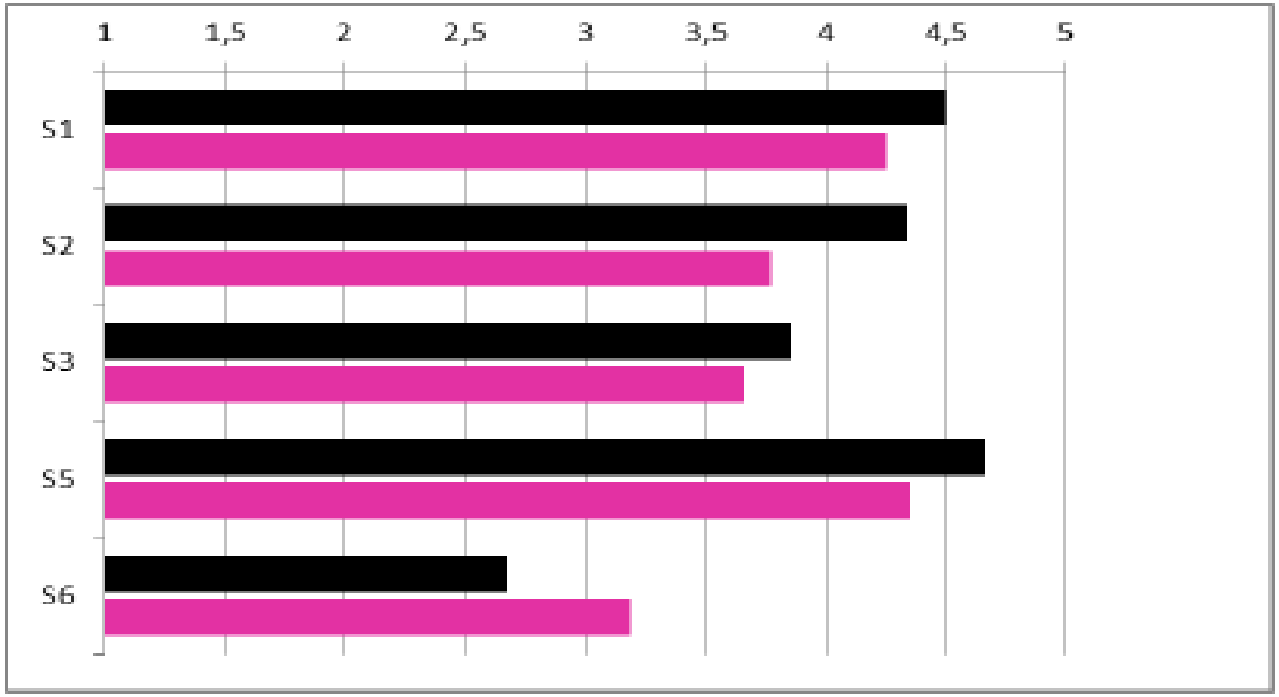


Data on the classroom processes

Students' perceptions of classroom quality (1)

		Mean
2.1	We start our lessons on time	3.79
2.2	If our teacher wants to explain something it takes a long time before everybody listens to him	3.43
2.3	It is quiet in our class when we are working on our own	4.21
2.5	We have clear rules in class	4.93
2.5	When I am working in class I know when I can ask my teacher to explain something, and when not	4.57
3.1	Our teacher knows how he can explain things best to me	3.56
3.2	If an answer is wrong our teacher explains why it is wrong	2.89
3.3	If my teacher explains something I immediately understand what she explains	2.67
3.4	Our teacher can explain difficult things in a clear way	3.01

Students' perceptions of classroom quality (2)



- Scale 1 – pedagogical climate
- Scale 2 – classroom organization
- Scale 3 – instruction
- Scale 5 – encouraging students
- Scale 6 – goal orientedness

The second DBDM-component: goal setting

Examples of goals mentioned by teachers

- “We will do our best.”
- “We want to accomplish high scores.”
- “We want to do the whole arithmetic book.”
- “We want to accomplish high scores matching with our school population.”
- Dutch schools: in general no school performance goals.

The third DBDM-component: choosing a strategy for goal accomplishment

Deliberately choosing a strategy for goal accomplishment

- Connecting evaluation results with (instructional) decisions is not that common.
- What to do if a test shows that different students do not master different parts of specific subject matter content?
- What causes that our school does not perform well? And what is an effective remedy??
- It requires much knowledge & skills at all 3 levels!

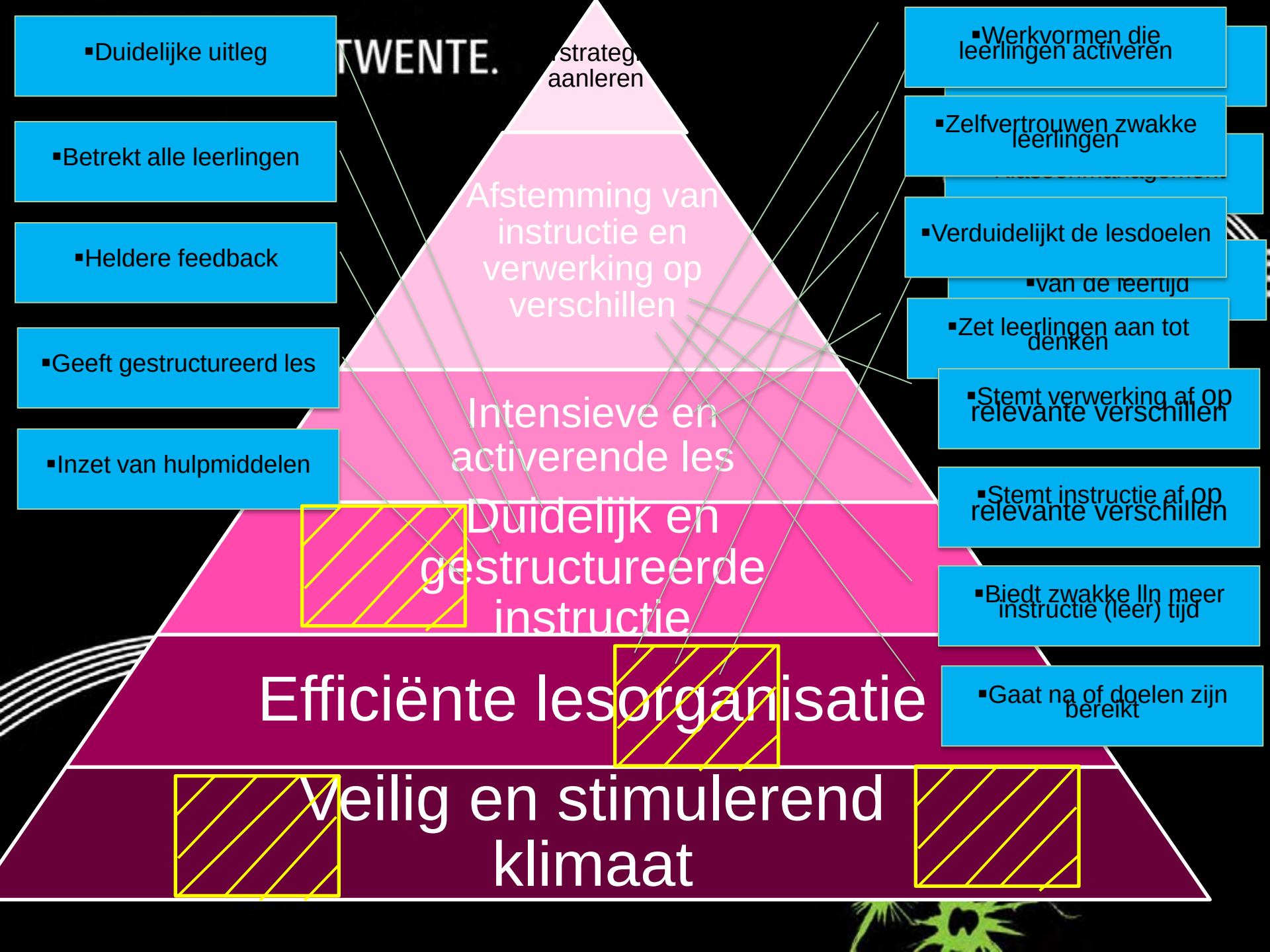
The fourth DBDM-component: strategy implementation

Using student performance data in class requires mastering didactical skills

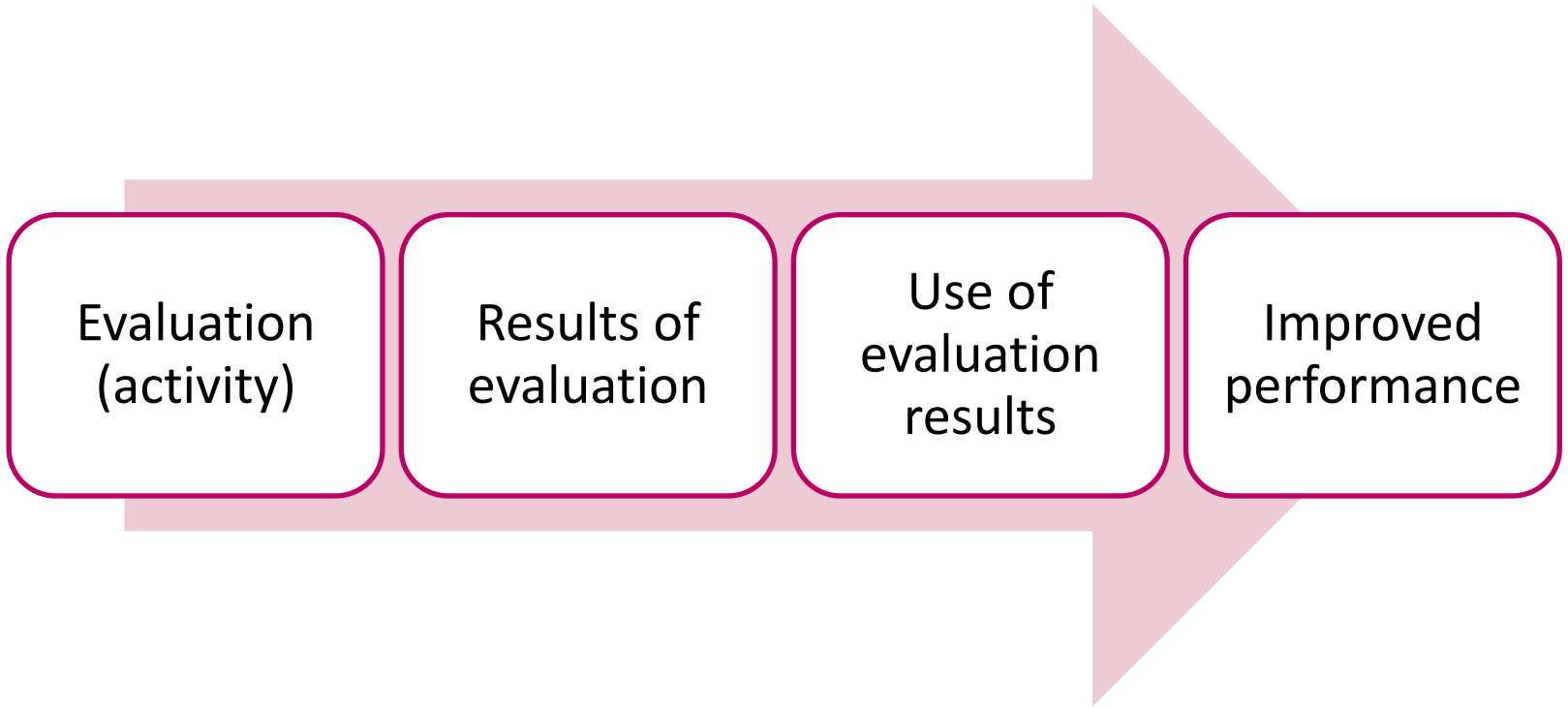
Basic didactical skills: clear explanation of subject matter, creating task-oriented classroom climate, involving students.

Complex didactical skills: e.g. differentiating instruction.

Complex skills NOT mastered by 60% of Dutch primary and 70% of secondary school teachers!


▪Duidelijke uitleg
TWENTE.
strateg
aanleren
▪Werkvormen die leerlingen activeren
▪Betrekt alle leerlingen
▪Zelfvertrouwen zwakke leerlingen
▪Heldere feedback
Afstemming van instructie en verwerking op verschillen
▪Verduidelijkt de lesdoelen
▪van de leertijd
▪Geeft gestructureerd les
▪Zet leerlingen aan tot denken
▪Stemt verwerking af op relevante verschillen
Intensieve en activerende les
▪Inzet van hulpmiddelen
Duidelijk en gestructureerde instructie
▪Stemt instructie af op relevante verschillen
▪Biedt zwakke lln meer instructie (leer) tijd
Efficiënte lesorganisatie
▪Gaat na of doelen zijn bereikt
Veilig en stimulerend klimaat

The assumption behind DBDM



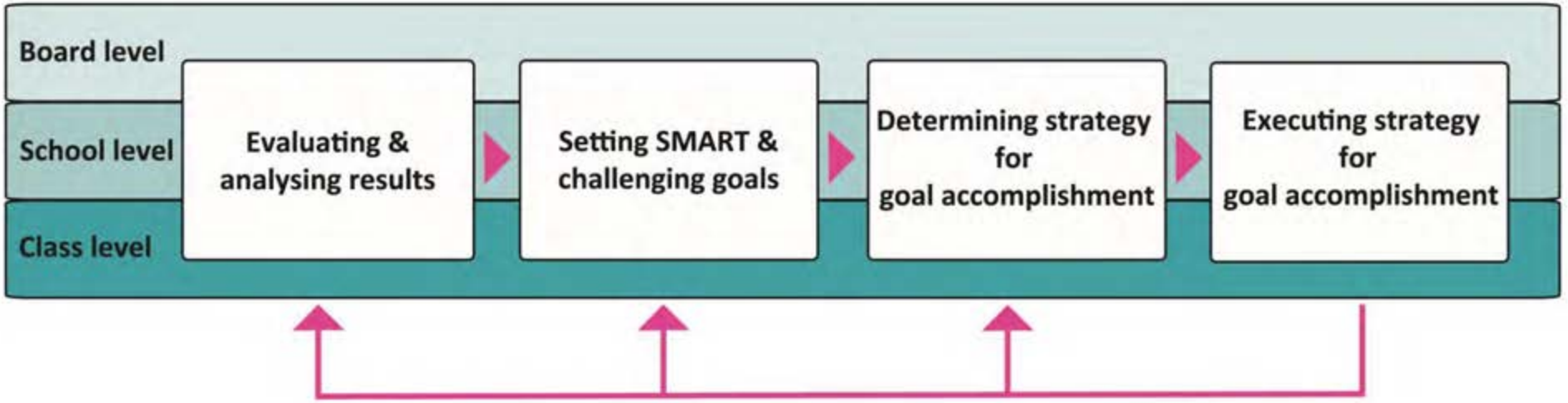
Calvin and Hobbes

From evaluation to improvement

Feedback helps to improve if we:

- receive it and know how to interpret it
- know what and how to improve,
- consider it urgent to improve,
- have the knowledge, skills, resources and support for improvement at individual, school and board level !

The levels and links in data-based decision-making



Recommendations?

- Find problems tests vs Hide problems tests.
- Think about the theory of action, and does it make sense?
- How much information will schools/teachers have about where the problem is?
- Good tests cannot compensate for poor teachers.
- Teachers appreciate support in learning to do a better job.
- Technology may also help us.

Thank you very much

for your attention!

a.j.visscher@utwente.nl