

The data team procedure: Where to next?



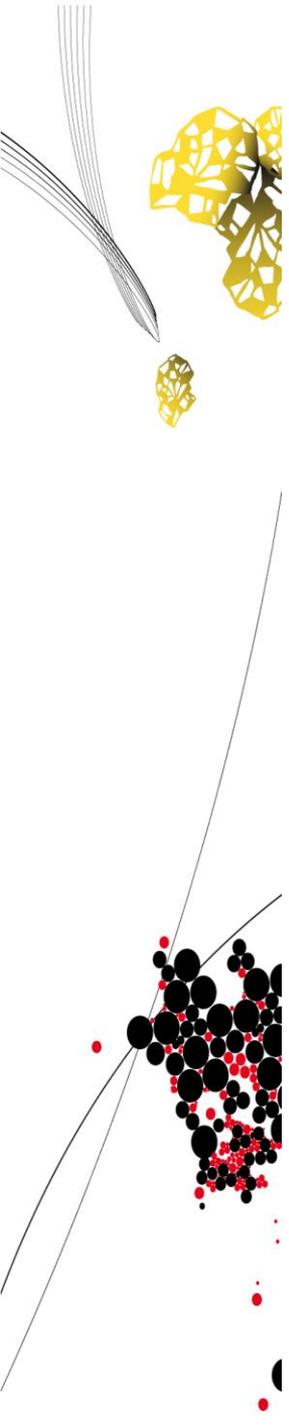
September 26, Data team conference Skåne

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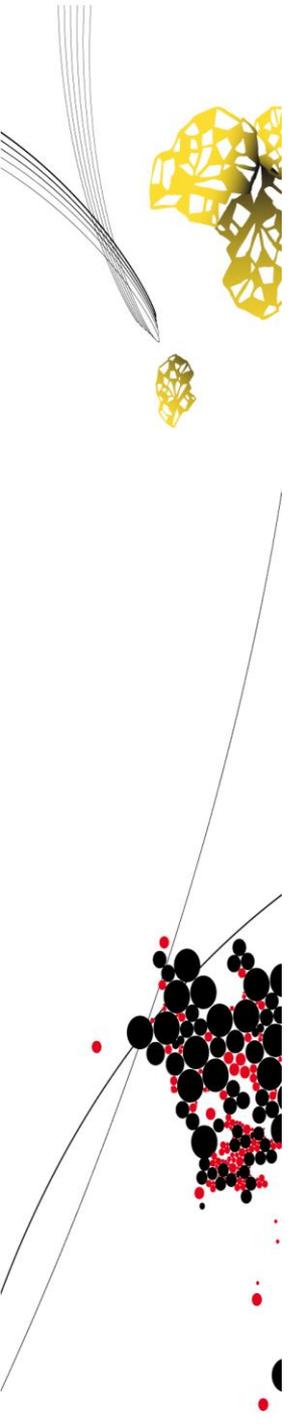
#datateam, #analysgrupper





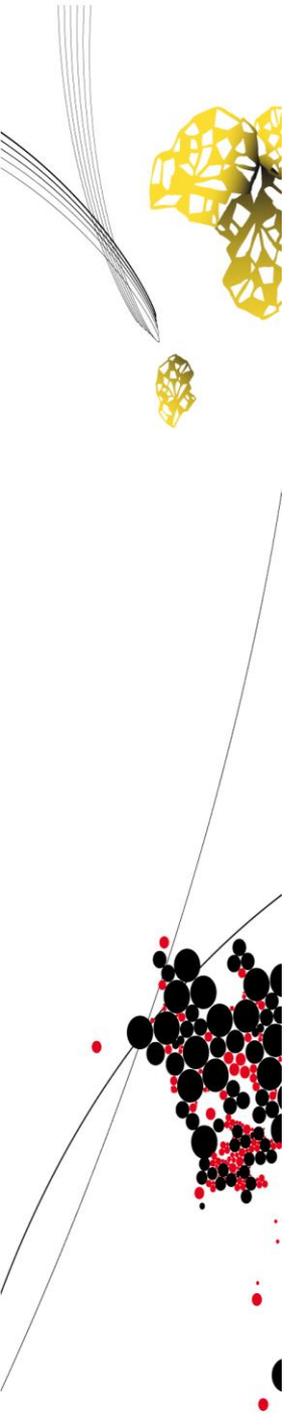
Basic premise 1

- Adaptive education/ differentiation important in education (e.g., Bennett, 2011; Black & Wiliam, 2009; Sammons, Hillman, & Mortimore, 1997).
- Start with prior knowledge and learning needs:
 - Who is familiar with the term evidence-based education?
 - Data-based decision making?
 - Data teams or analysgrupper?



Basic premise 2

- Repetition can benefit learning (Fuchs & Fuchs, 2006)
- Content of this presentation
 - Evidence-based education and data-based decision making
 - Support in the use of data
 - An example from practice: the datateam[®] procedure
 - Research results data teams
 - Where to next?



Evidence-based education

- Use different types of evidence in school improvement (Scientific research evidence):
 - Rigor, proven effective interventions, but not based on a real need in the field, and one size does not fit all
- Local school data:
 - Less rigor, solutions less grounded in evidence, but starts with a school's vision and goals, is more relevant, context specific solutions (e.g., Brown, Schildkamp, & Hubers, 2016)



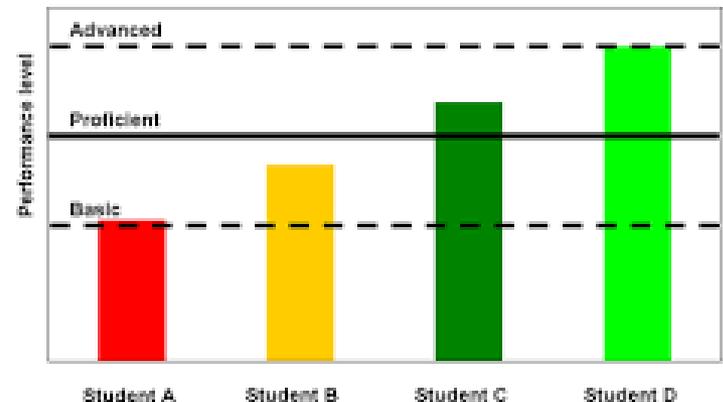
What counts as data?

Student assessments/achievement results?



Standards-Based Tests

Standards-based or Criterion-referenced tests (CRTs) compare student performance to established criteria for learning



What counts as data?

Surveys? Closed-ended? Open-ended?



Parent Questionnaire

My child's name/nickname _____

Parent(s) name(s) _____

Best way to contact me: (please fill out each line, and check all boxes that apply)

Phone: _____

Email: _____

Note sent home

Please list any allergies your child has: _____

What are some of your child's special interests, hobbies, and skills? _____

Please list the goals you have for your child this year: _____

What are your child's strengths? _____

What are some things your child needs to work on? _____

How can I help your child succeed this year? _____

Is there anything else you'd like to share? _____

I look forward to working with you to help your child have the best year ever!

Free printable form: www.hungry.com

What counts as data?

Interviews with students, teachers, management, parents?



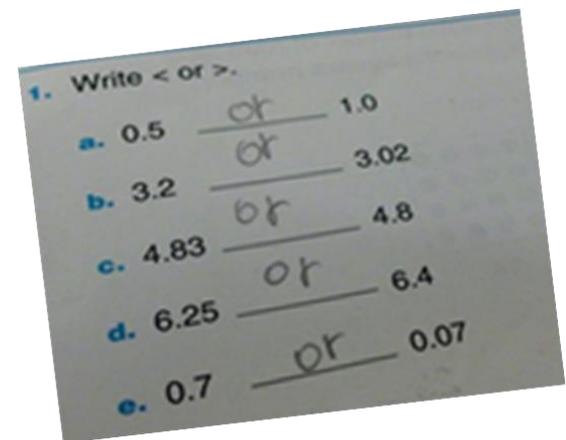
What counts as data?

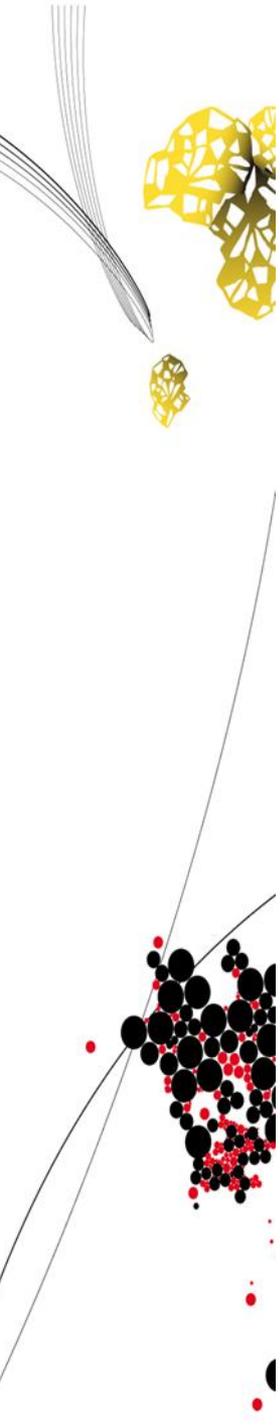
Observations?



Data-based decision making (DBDM)

- The use of data to improve education (Schildkamp & Kuiper, 2010)
 - **Systematically collected**
 - Analyzing and interpreting data
 - Using this information to improve education
 - Achieving the school's goals

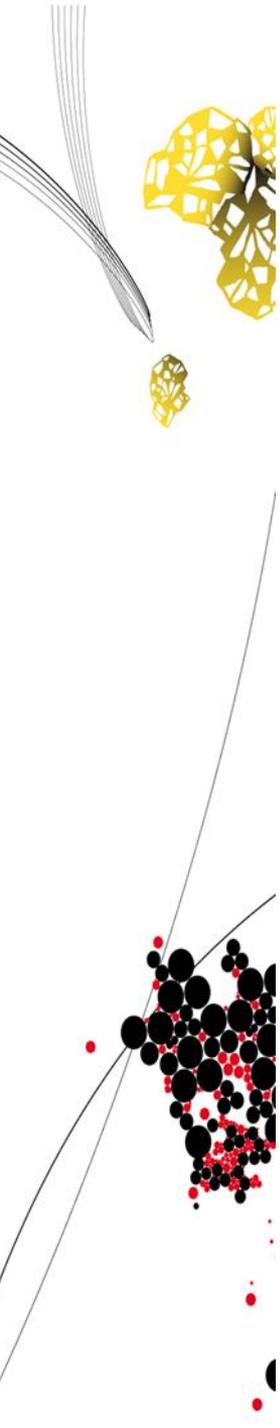




Importance of DBDM

- Assumptions need to be checked. Might be incorrect:
 - Class size usually does NOT have an effect on student learning (e.g., *Blatchford, 2012; Unesco, 2011; Hattie, 2009*)*
 - Boys are NOT better in mathematics than girls (e.g., *Kane & Mertz, 2012; Stoet & Geary, 2012; Wei et al., 2012*)*
 - Student achievement does NOT increase if you adapt instruction to learning styles (e.g., *Coffield et al, 2004; Corbelis, 2012; Hattie, 2009*)*

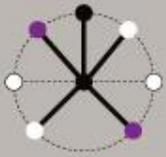
*All cited in *De Bruyckere & Hulshof (2013)*



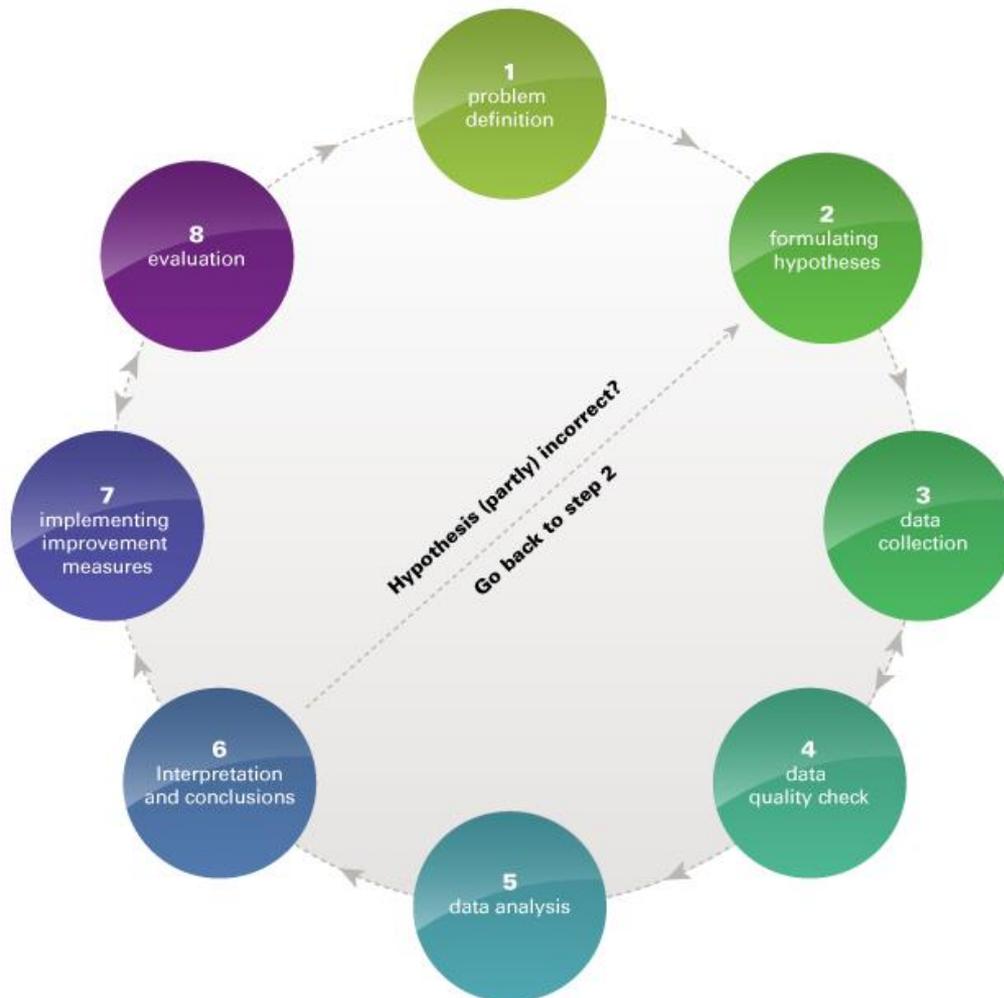
DBDM to improve education

- Assumptions sometimes incorrect
- Data can pinpoint strengths and weaknesses
- Making high quality decisions based on data in combination with experience to improve
- Using data to determine learning needs of students and adapt instruction accordingly
- Improved education for students and increased student achievements

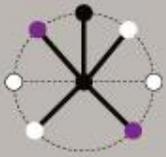
- Sources: *Carlson et al (2011); McNaughton et al (2012), Poortman et al (2016); Van Geel et al (2016)*



The datateam[®] procedure



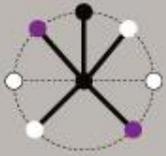
- Teams 6-8 teachers and school leaders
- Educational problem: low student achievement, safety
- Goals: professional development and school improvement
- Coach guides them through the eight steps (1-2 years)
- Data analysis courses
- Teams in Nacka & Skåne



Step 1 Problem definition examples

- Topics in the Netherlands, all in the cognitive domain:
 - Student achievement in a specific subject
 - Final examination results
 - Grade repetition
- Topics in Sweden, in the cognitive and social domain:
 - Student achievement in a specific subject
 - Stress
 - Safety
 - Classroom climate





Step 2 Hypotheses examples

- Netherlands: 
 - Students that passed have a significantly lower number of missed classes than students that did not pass.
 - Several students are failing, because the learning goals are not clear at the start of every lesson
- Sweden: 
 - Students that do not qualify for upper secondary school have lower language skills than students that qualify.
 - The presence of adults during breaks promotes students feeling safe.

Learning results

Student

Prior knowledge

Metacognitive skills
(learning how to learn)

Motivation

School

Curriculum coherence

School culture

Student care

Effective learning time

Teacher

Feedback

Quality of instruction

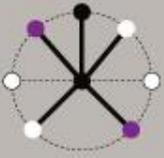
Classroom management

Pedagogical climate

Managing differences
between students

Assessment

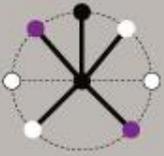
High expectations towards
students



Step 3 Data collection examples

- Student achievement data
- Surveys: motivation, feedback, curriculum coherence
- Observations: in the classroom, playground, during breaks
- Student interviews, teacher interviews
- Attendance data

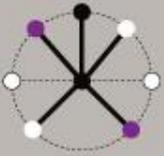




Step 4 Data quality examples

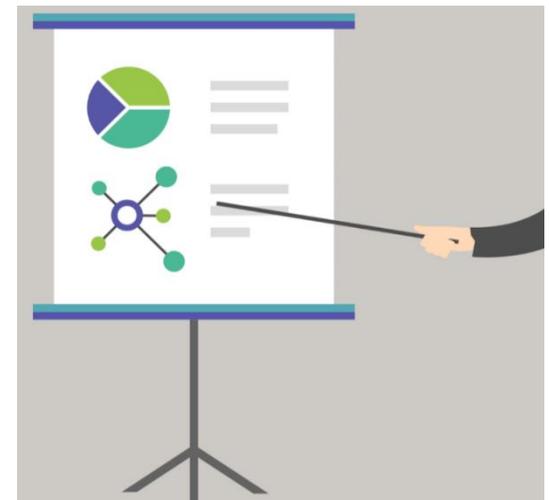
- Validity problems with survey
- Missing data
- Data of one year only
- Different ways of measuring the same variable

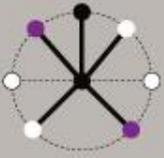




Step 5 Data analysis examples

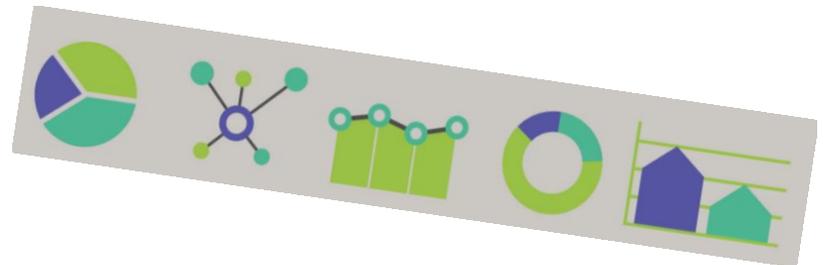
- Average, standard deviation
- Percentages
- Comparing two groups: t-test
- Qualitative analyses of interviews and observations
 - Coding
 - Summarizing

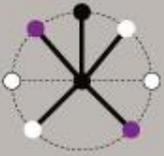




Step 6 Conclusions examples

- Example of 32 data teams:
 - 33 hypotheses: accepted
 - 45 hypotheses: rejected
 - 13 (qualitative) research questions
 - 13 hypotheses: no conclusion due to limitations of the dataset

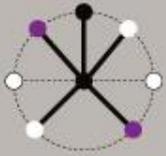




Step 7 Improvement measures examples

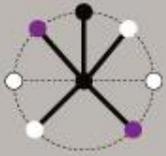
- Netherlands
 - More intensive mentoring
 - Implementation of formative assessment
 - Instructional changes, such as improvement of feedback
- Sweden
 - Improvement of data collection and data sharing
 - Increased monitoring and follow-up of student absence
 - Improve the safety in places where students reported feeling unsafe





Step 8 Evaluation example

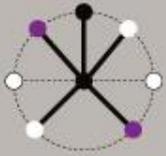
- Example process evaluation:
 - Action for mentors: Every week follow up on students who missed classes, confront and ask why
 - Interview mentors: Are you conducting the follow up?
 - Action: Having a meeting with the mentors on the importance of following up in relation to increasing achievement



Research results

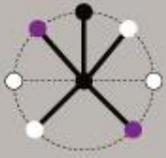
- How do data teams function?
- What are the influencing factors?
- What are the effects of data teams?

- Results are based on three studies conducted in the Netherlands (Schildkamp, Handelzalts, & Poortman, 2015; Schildkamp & Poortman, 2015; Hubers, Schildkamp, Poortman, & Pieters, 2016) and one study in Sweden (Schildkamp, Smit, & Blossing, 2016)

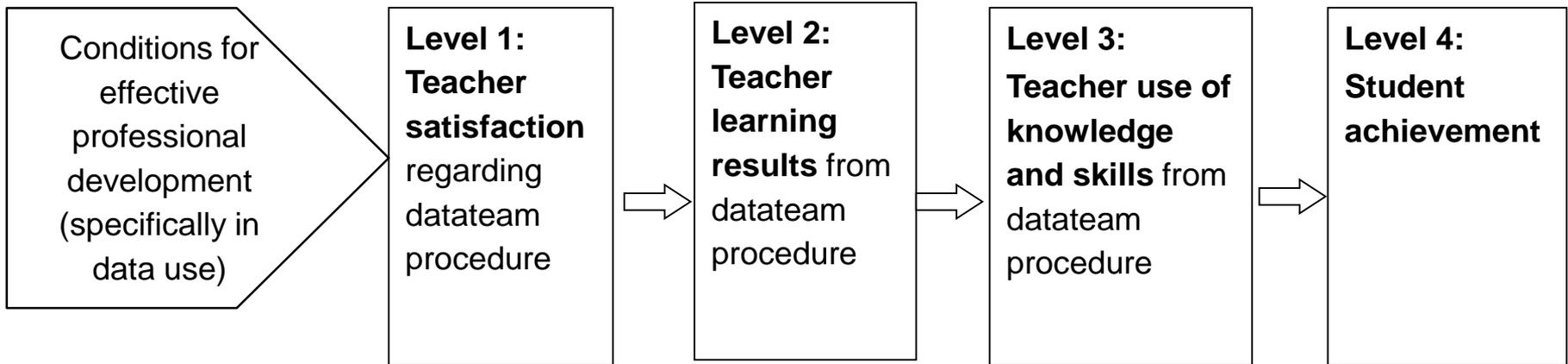


Data team functioning

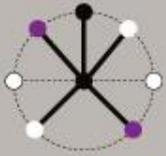
- Difficult to formulate a measurable hypothesis
- Several rounds of hypotheses: first hypotheses often wrong
- Often external attribution: problem is caused by primary schools, by policy etc.
- However, this is necessary: need to create trust; practice with the eight step procedure; learning starts when you make mistakes; shows the importance of data
- From external to internal attribution
- Knowledge dissemination needs more attention



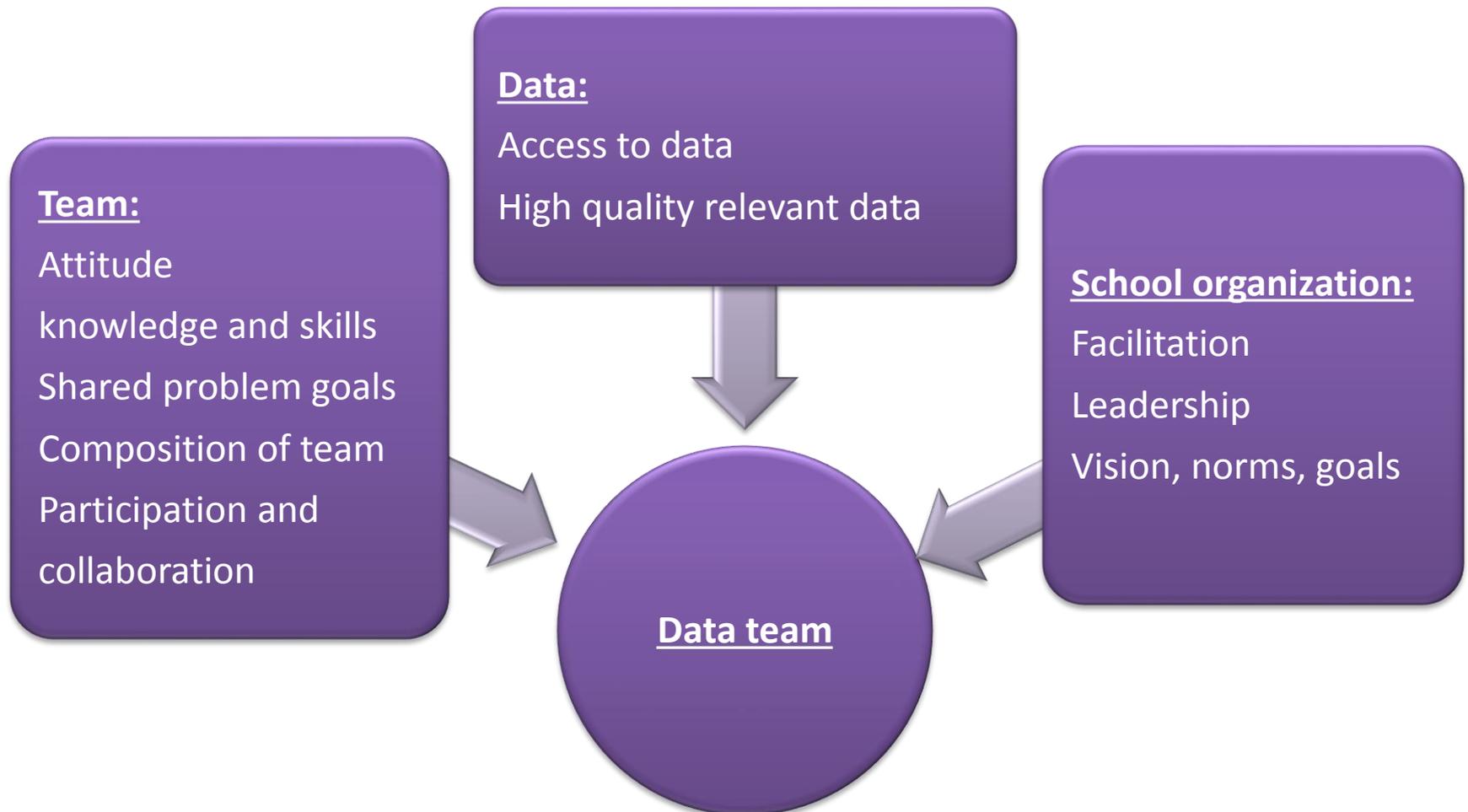
Conditions and effects

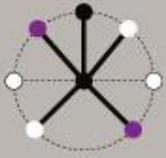


Framework of effects from teacher satisfaction to increased student achievement (based on: Kirkpatrick, 1996; Guskey, 1988; Desimone, 2009; Desimone, Smith & Phillips, 2013)



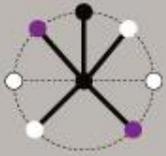
Policy: **Municipality**, inspectorate, coach





Effects (NL)

Effects level	Instrument(s)
Level 1: satisfaction	<ul style="list-style-type: none">• Satisfied about support, process and progress• <i>'good'</i>; <i>'fun'</i>
Level 2: knowledge, skills, attitudes	<ul style="list-style-type: none">• Knowledge and skills increased significantly• <i>'learnt how to use calculations in Excel'</i>; what + how of qualitative analysis; <i>'you really need evidence'</i>
Level 3: use of learning	<ul style="list-style-type: none">• Data use for instruction: e.g., prepare students better for exam (explanation and practice)
Level 4: student achievement	<ul style="list-style-type: none">• Five out of nine schools solved problem: Significant increase in student achievement



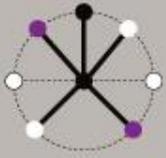
Effects Sweden

- Awareness of the importance of data use
- Some changes in the school
 - Improving data collection and data systems
 - Increasing safety in the school
 - Strategies to reduce absence: Students receive earlier warnings on absence and teachers employ strategies to prevent absence

You waste a lot of time just talking about problems without going forward, or you go forward too fast, which we would have done without data teams

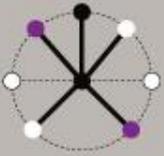
It is always a good thing to know how things are before we make decisions. I really want Swedish schools to be more scientific. This experience has strengthened my beliefs that this is important to work with

The process is very good. I tended to jump ahead, but our team leader stopped us. Our pupils need structure, but we need structure too



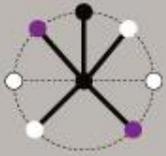
Where to next? Sustainability

Behavior: data use as an organizational routine	Ostensive aspect	Performative aspect
The data team[®] procedure	Make data team part of school's policy	Continue work with data teams, start new teams
Implementing action plan	Develop policy and guidelines: What is needed to implement action plan	Implement actions with school staff
Using data	Develop policy and guidelines: Use data for accountability, school development, instruction	Collaboratively use data, inside and outside data teams



Guidelines sustainability

- Translate the improvement measures of the team into concrete tips and guidelines
- Involve colleagues from the start: knowledge sharing
- Data teams: Continue with team with old and new members, create “spin-off” teams, incorporate this way of working in existing teams
- Commitment of school leader is crucial
- Imbed data use in policy and practice of the school
- Remember the conditions



Conclusion and discussion

- Data teams: From ‘intuition-based decision making’ to ‘data-based decision making’
- Change in school culture: “You want to take decisions based on assumptions, that is not the way we work here anymore”
- Support schools in solving problems and achieving goals
- Importance of knowledge sharing within and outside the team
- Need to invest in sustainability from the start: Data use as an organizational routine
- Increased student learning

Data team Partners in Sweden



Kommunförbundet Skåne



HELSINGBORG



LANDSKRONA STAD



Malmö stad

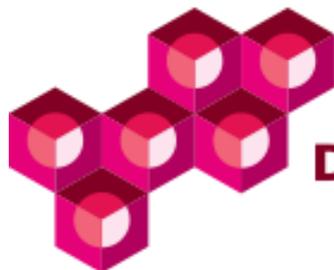


LUND



GÖTEBORG
UNIVERSITY

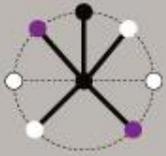
NACKA
KOMMUN



Datateam
Partners

More information on data teams

www.datateams.nl



datateams

Thank you for your attention!

Kim Schildkamp: k.schildkamp@utwente.nl

For more information see also:

Studentlitteratur

Datagrundad skolförbättring

utifrån datateam[®]metoden

Kim Schildkamp, Adam Handelzalts,
Cindy Poortman, Hanadie Leusink, Marije Meerdink,
Maaïke Smit, Johanna Ebbeler, Mireille Hubers

Med förord av Ulf Blossing