

Data-based decision making and the role of students

SePU-konferanse Aktører i egen læring, 24-05-2022

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In this presentation

Part 1: The data use process

- Start with a purpose
- Use multiple data sources

Part 2: Involving students in the use of data

- Involve students in the use of data

Part 3: The use of data in a PLC

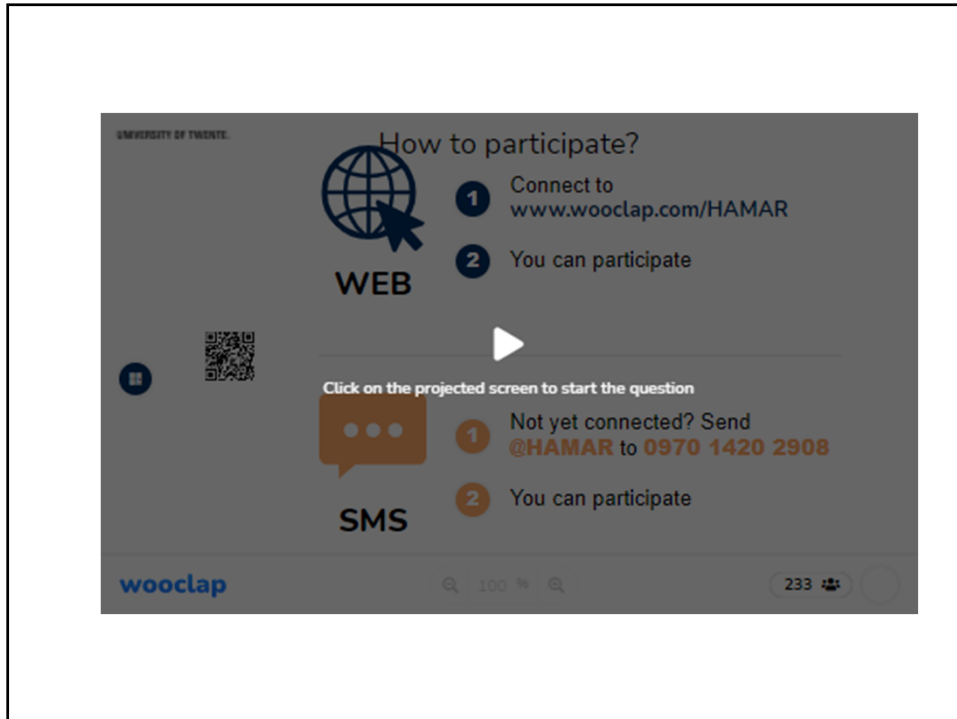
- Use data in dialogue (in a PLC)

Part 4: Leadership

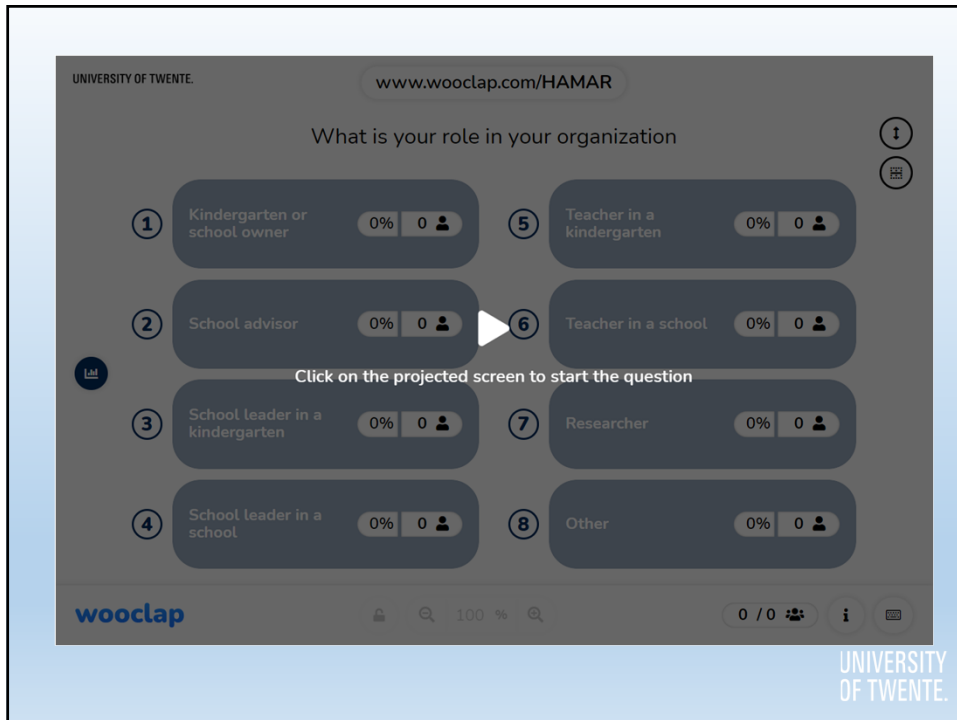
- Data use requires distributed leadership

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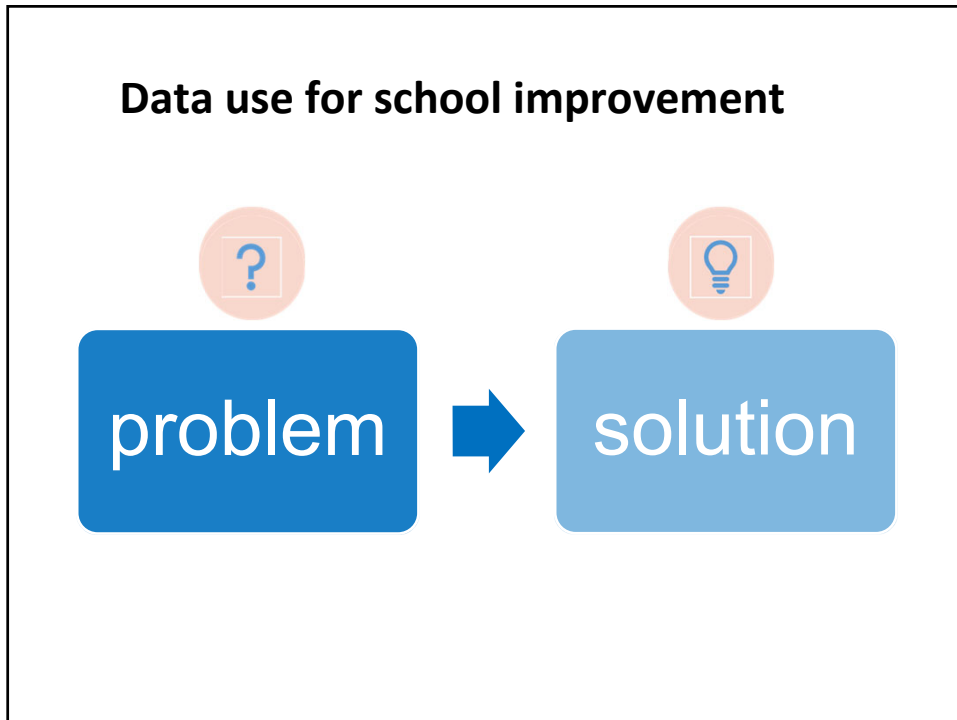
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Part 1: the data use process

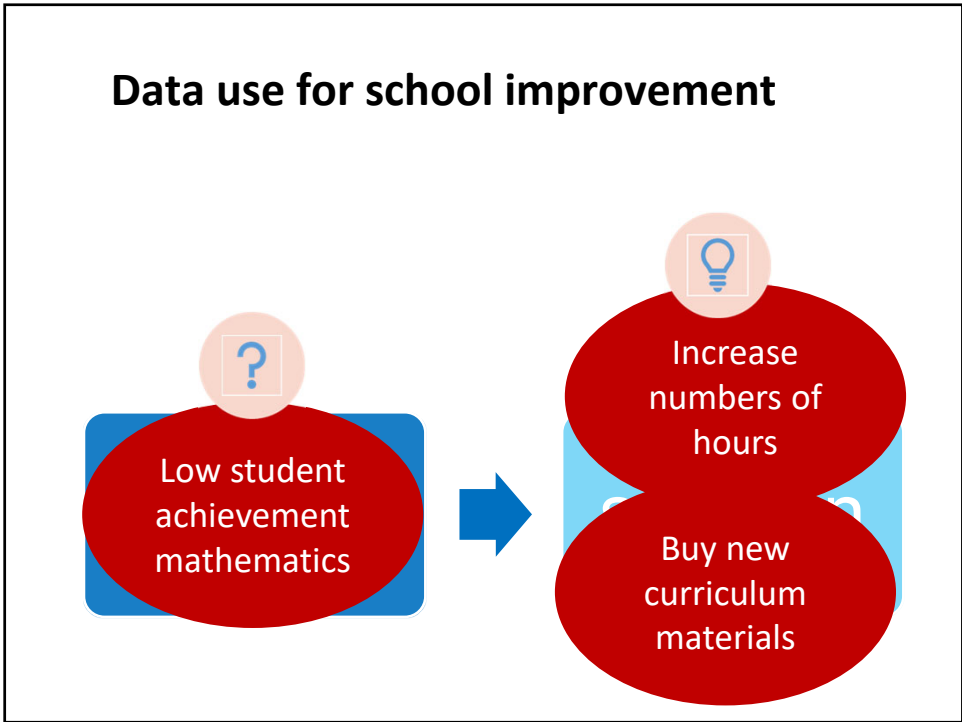
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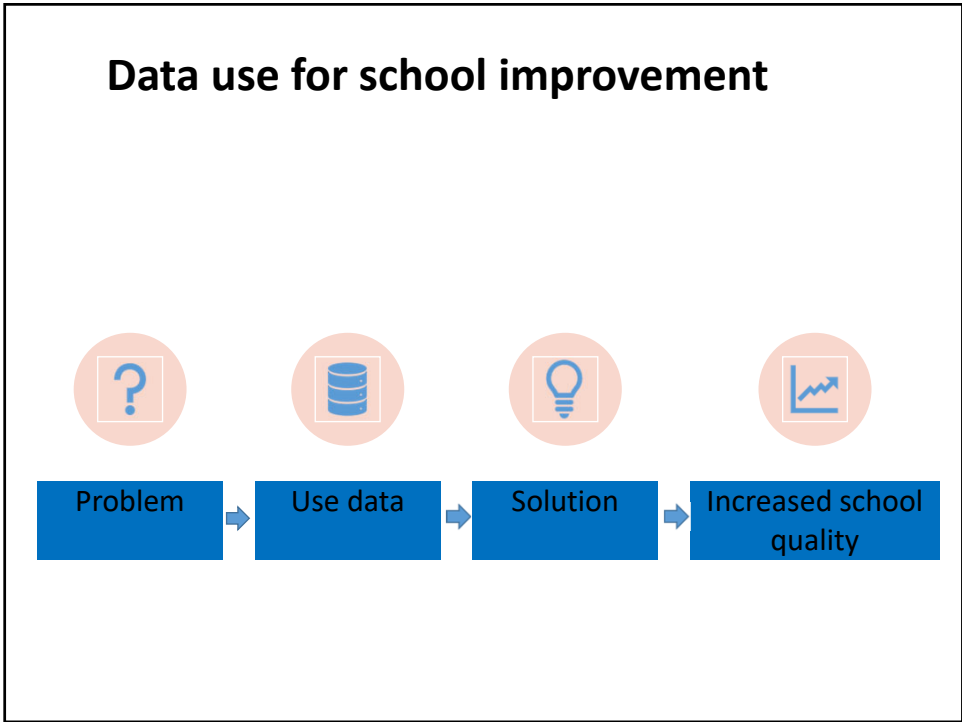
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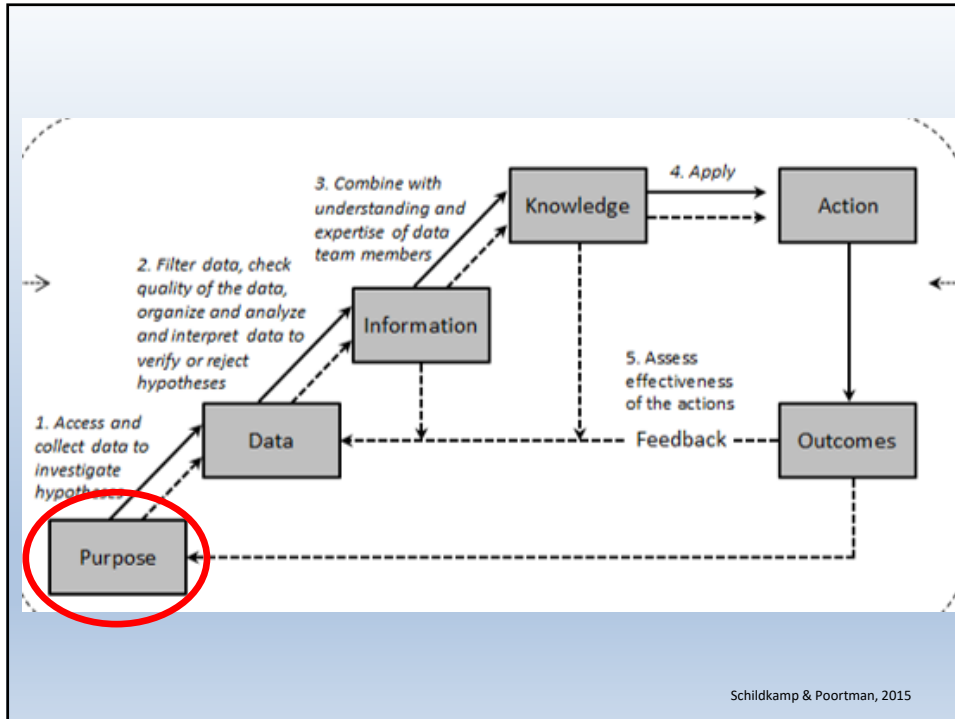
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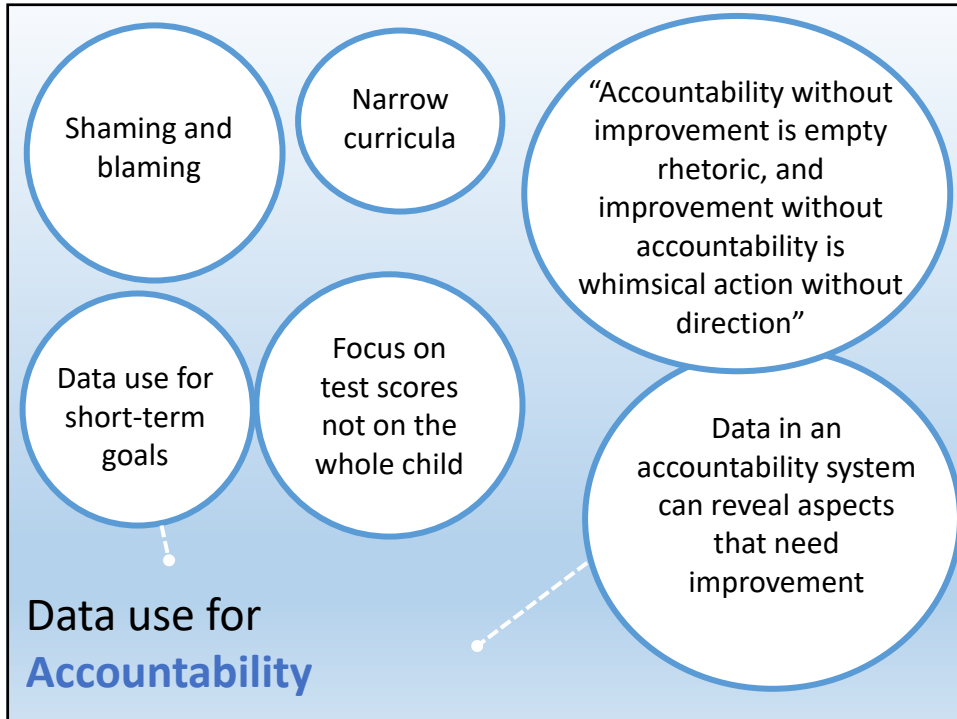


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Too many data:
where to start?

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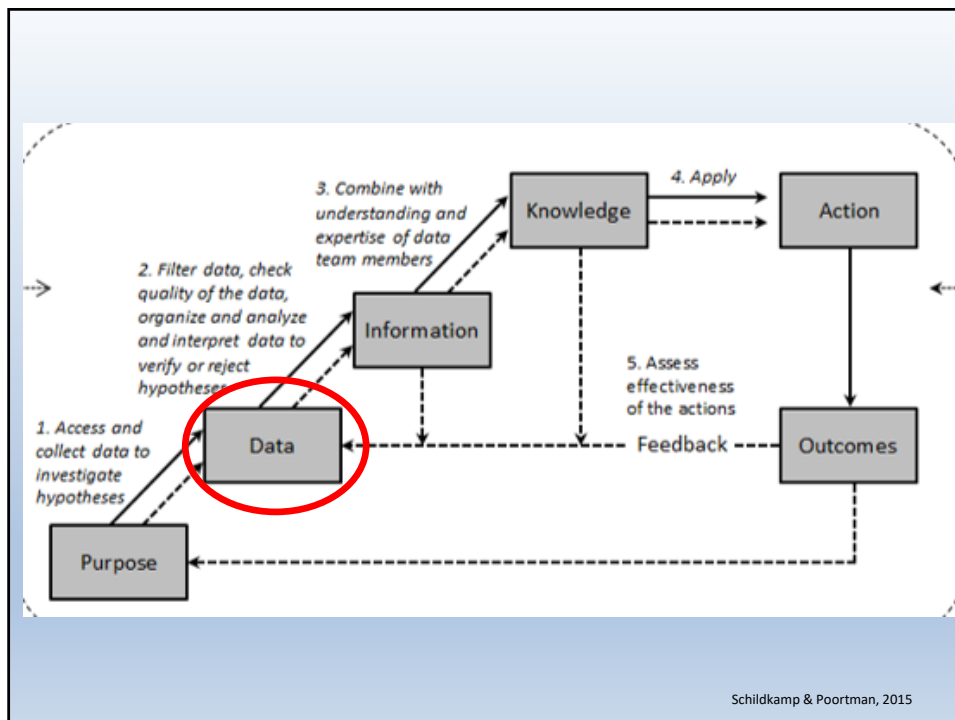
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Take away message 1:
Start with a purpose and
not with data

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Data

- Systematically collected
- Goal displacement
- New goals new data
- Qualitative and quantitative
- Not only cognition (tests), also e.g., socio-emotional, attitudes, behavior.
- Triangulation
- Student voice data

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Which data are available in your school?

Let's vote!

Click on the projected screen to start the question

answers received

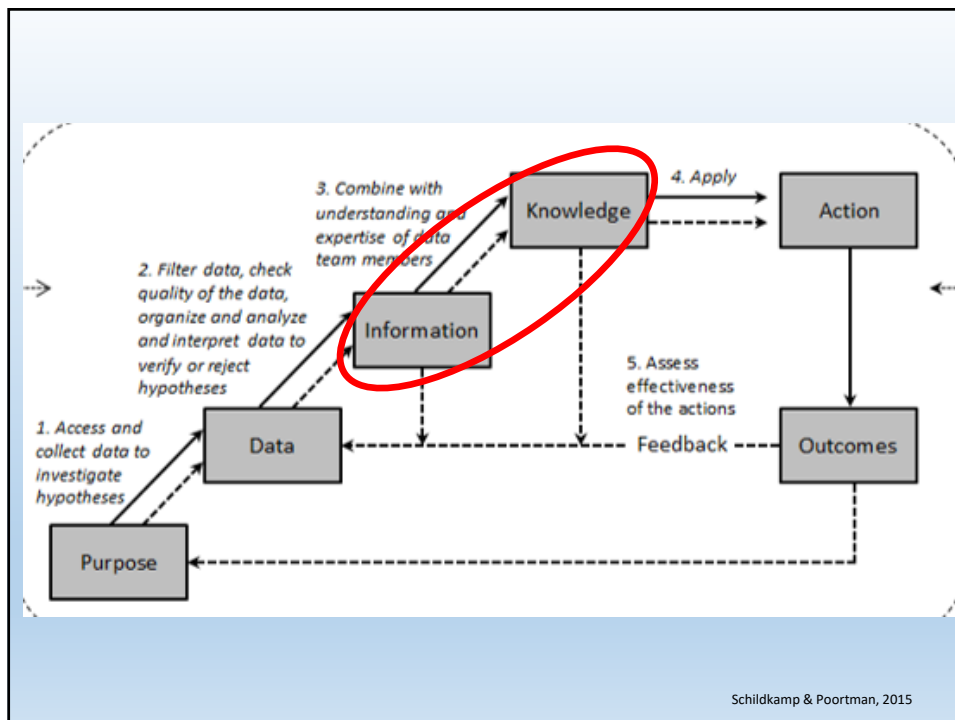
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Take away message 2:
Use multiple data
sources

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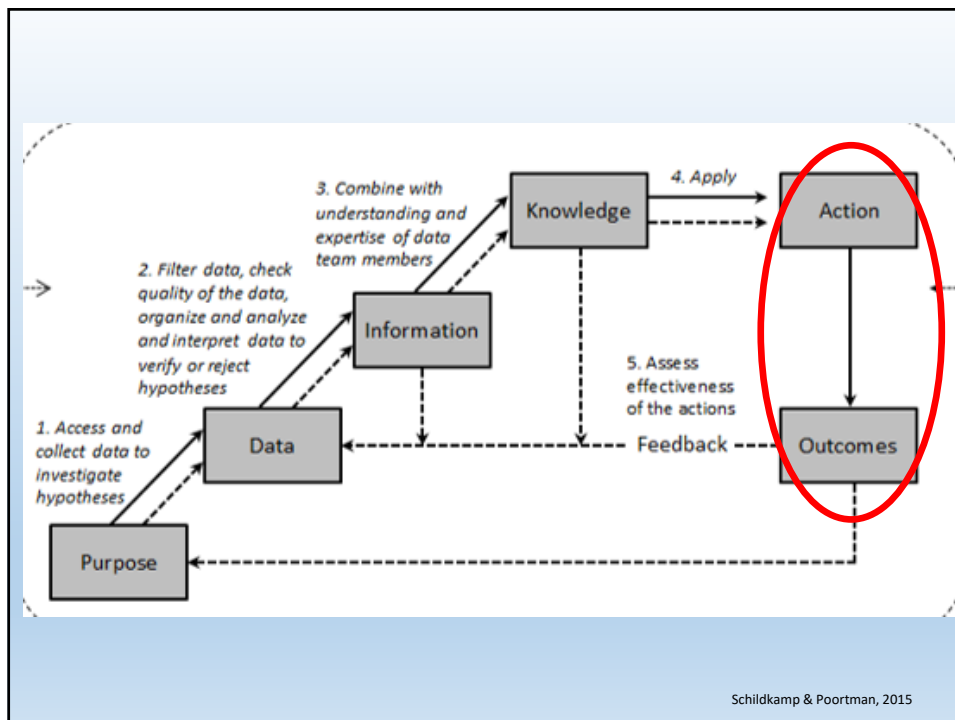
Sense-making

- Not straightforward or exclusively rational
- Filter data through lenses
- Experience and intuition
- Confirmation bias
- Collective engagement
- Dialogue with students
- Requires data literacy

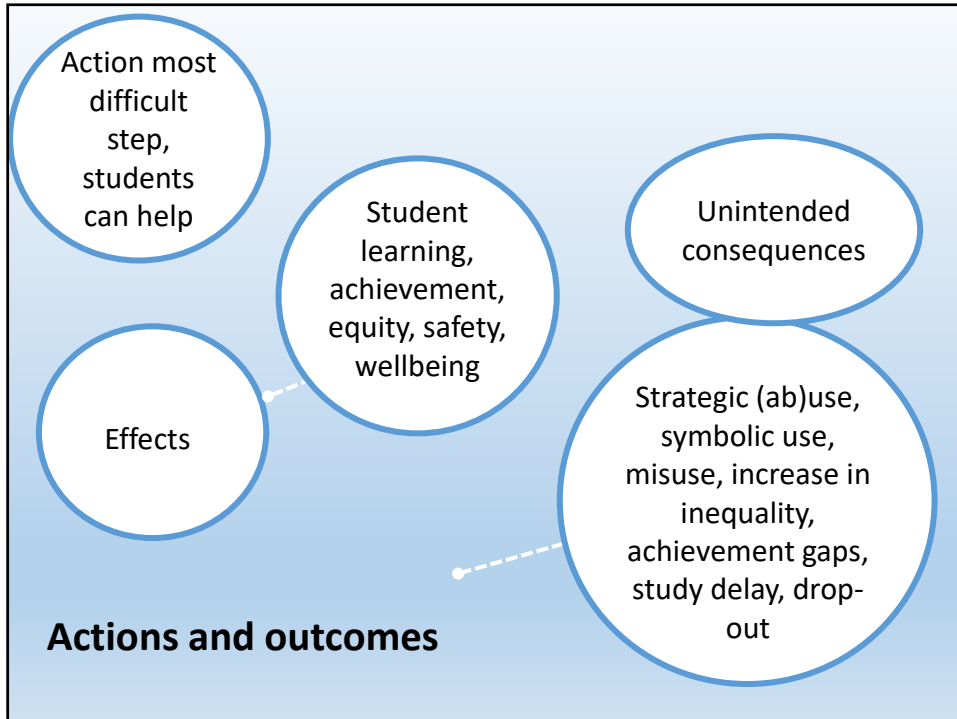


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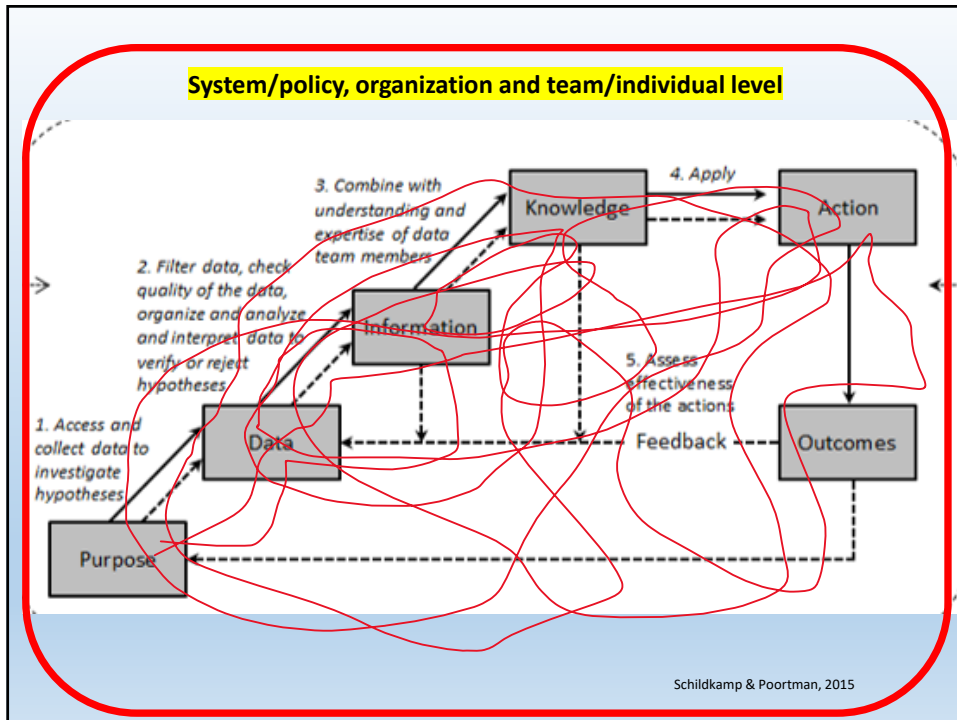
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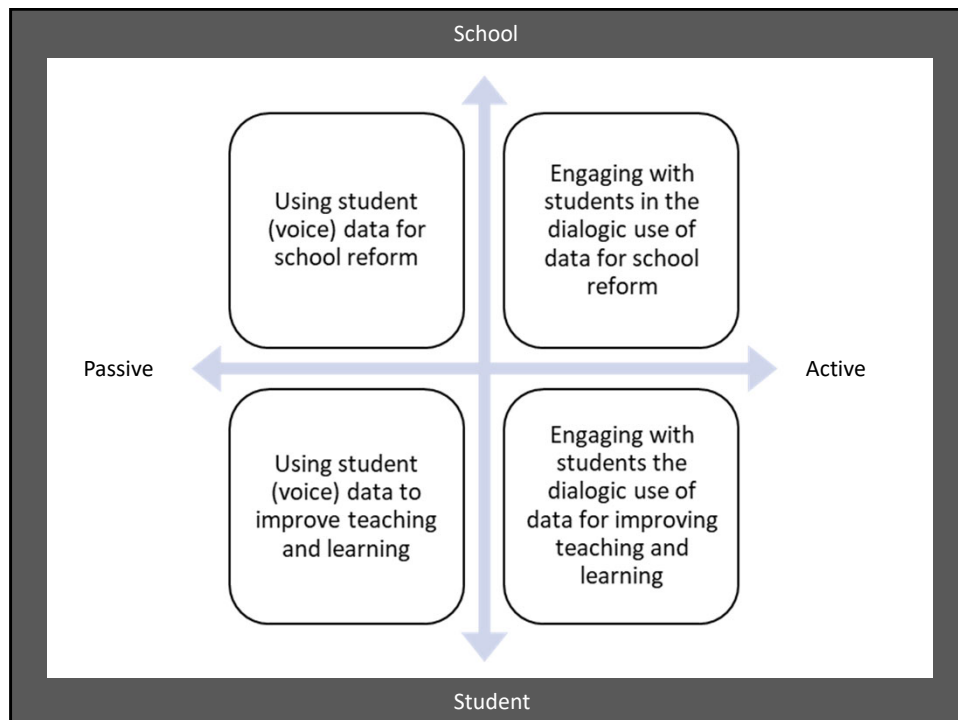


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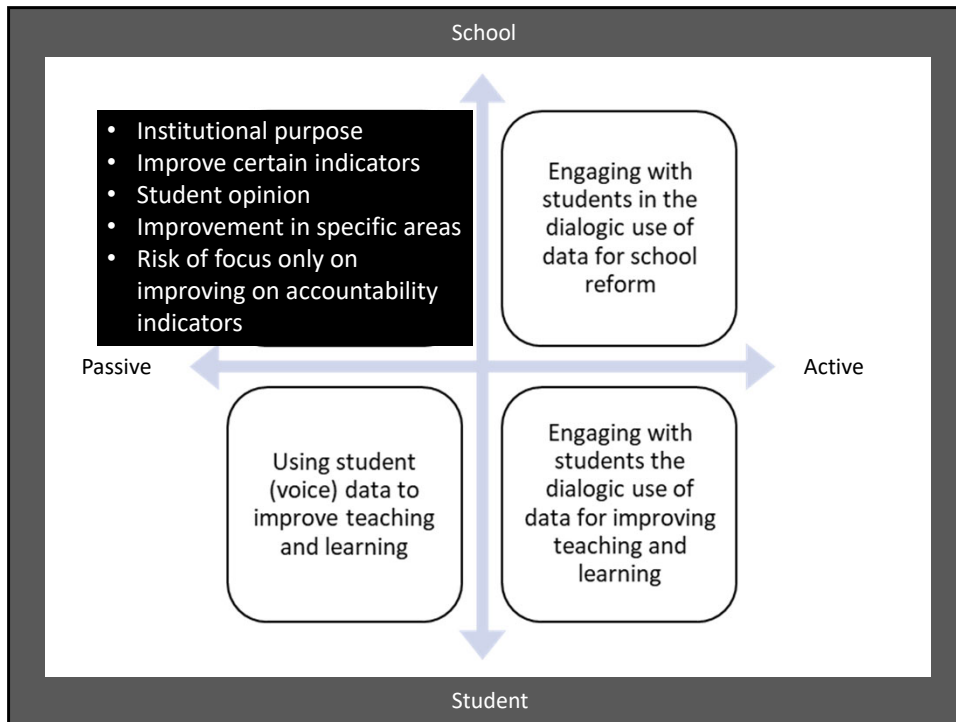
Part 2: Involving students in the use of data



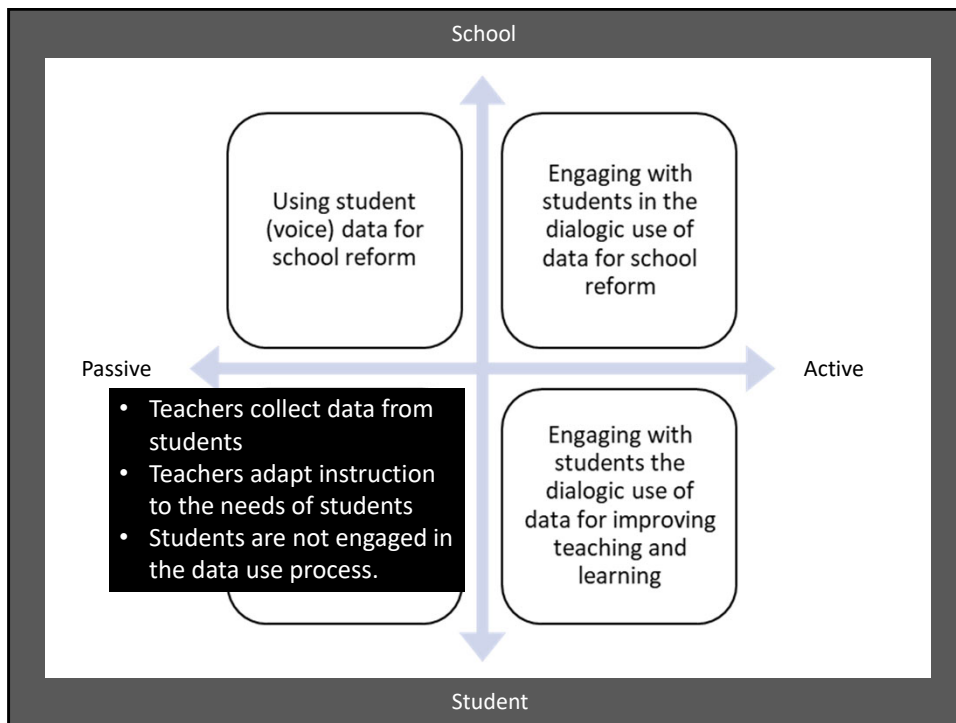
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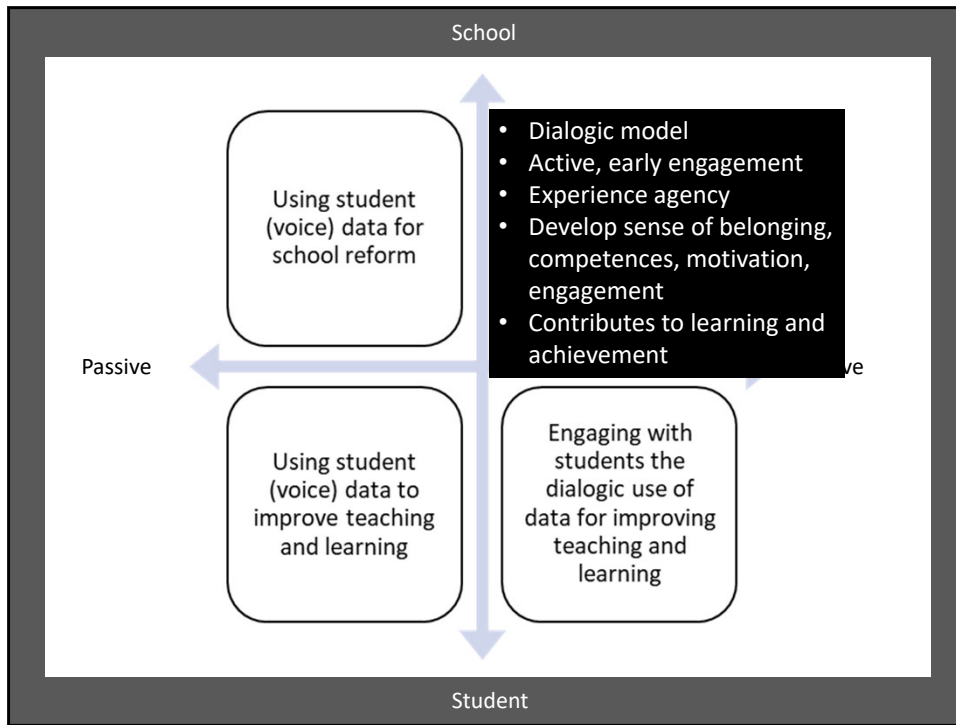
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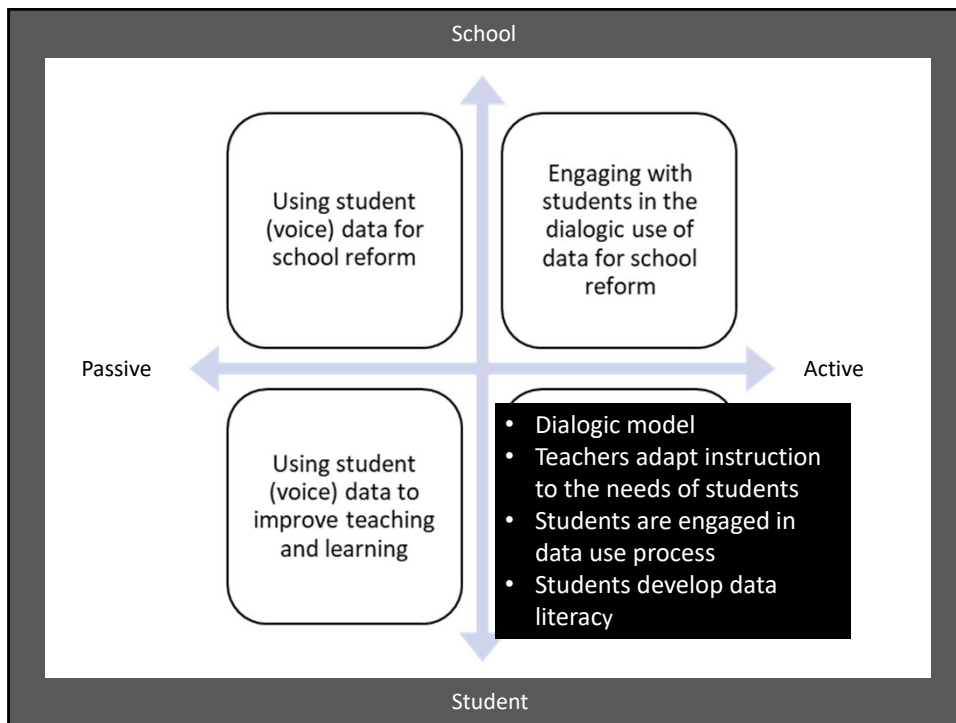
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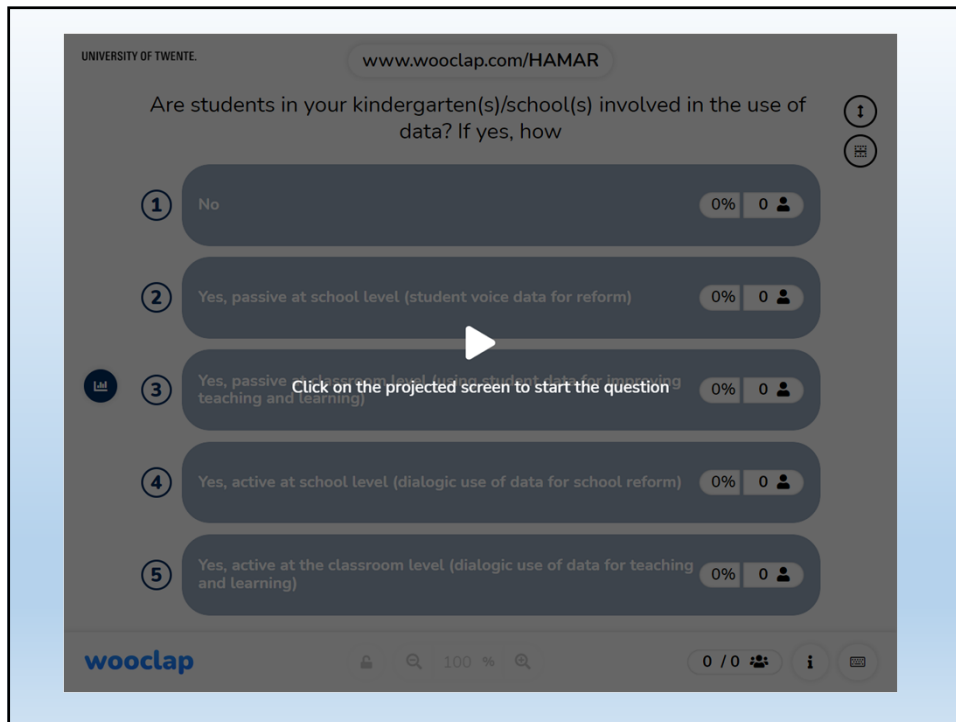
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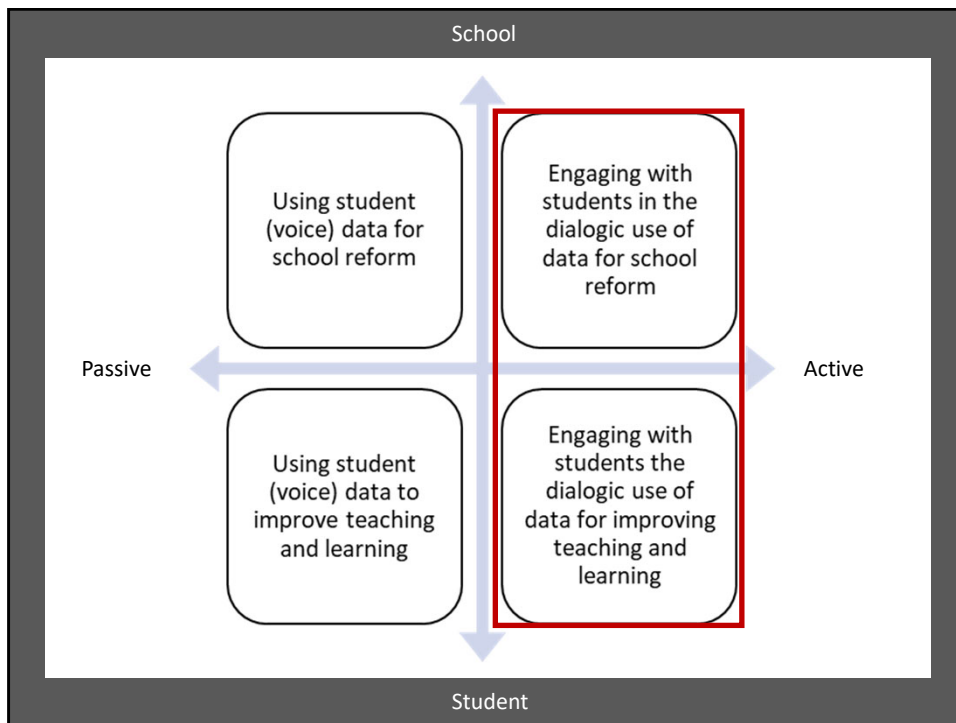
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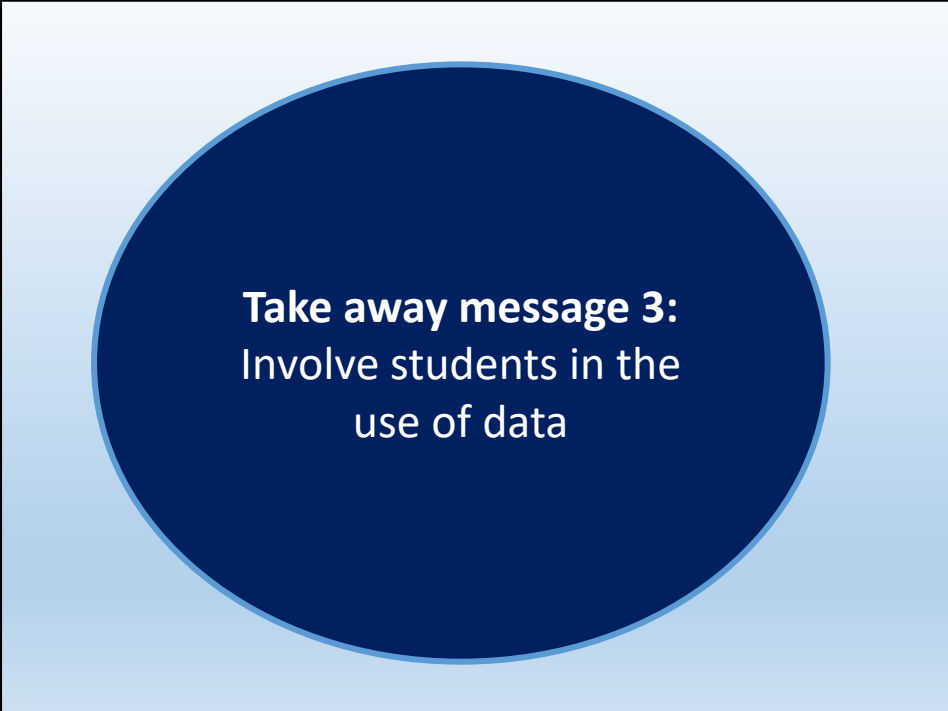
Involving students

Can contribute to:

- effective school reform
- improvement of teaching and learning in the classroom
- developing data literacy amongst students

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Take away message 3:
Involve students in the
use of data

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Part 3: The use of data in a PLC

DATA TEAM

A

CONSISTS OF TEACHERS AND SCHOOL LEADERS.

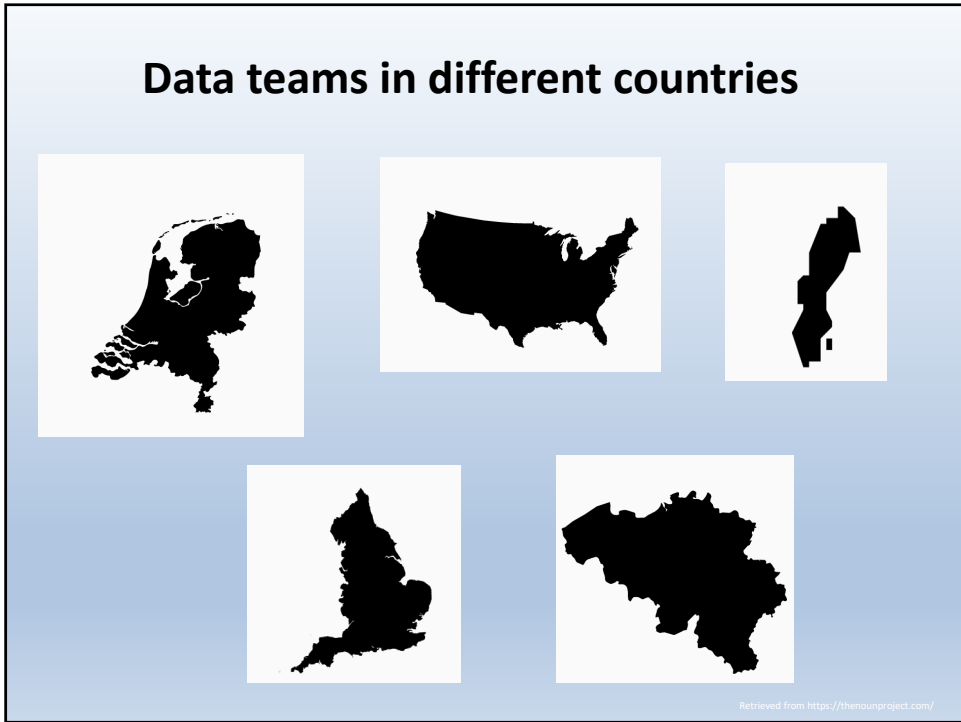
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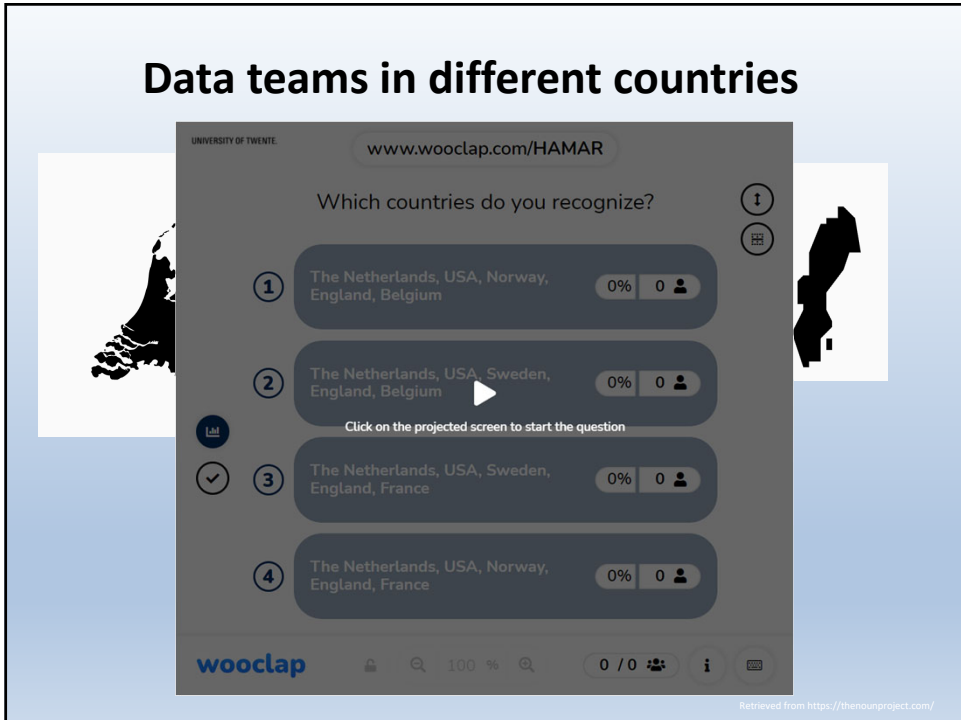
The datateam intervention

- Teams 6-8 teachers and school leaders
- Educational problem: low student achievement, wellbeing
- Goals: professional development and school improvement
- Coach guides them through the eight steps (1-2 years)


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Step 1: Problem definition

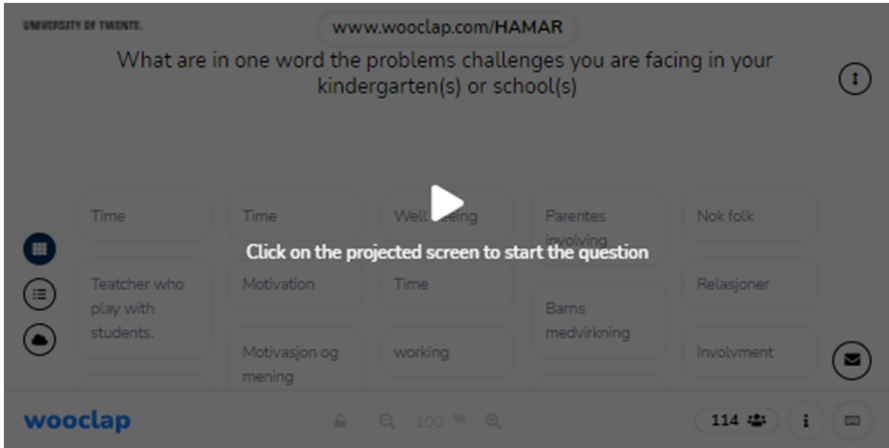
- Identify a current problem in the school
 - School-wide or subject-specific
- Prove that you have a problem
 - Collect data on current situation and desired situation
 - Three cohorts/years
- Example:
 - Current situation: '45% of our students in grade 3 (N=123) is failing mathematics'
 - Desired situation: 'Next year no more than 30% of our students is failing, the year after that no more than 15%.'

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Step 1: problem definition



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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



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Step 2: Formulating hypotheses

- Brainstorm possible causes
 - Ask colleagues for input
 - Make a list
- Choose a hypothesis
 - Based on criteria, such as: what can we influence as a school? Which hypothesis do a lot of colleagues believe to be true? What is according to the literature a possible cause?
- Formulate a hypothesis
 - Concrete
 - Measurable

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Step 3: Data collection

- Available data
- Existing instruments
- Quantitative and qualitative
- Examples:
 - Student achievement data
 - Surveys: motivation, feedback, curriculum coherence
 - Classroom observations
 - Student interviews, teacher interviews



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Step 4: Data quality check

- Reliability and validity of the data
- Crucial step: not all available data are reliable and/or valid!
- Examples:
 - Validity problems with survey
 - Missing data
 - Data of one year only



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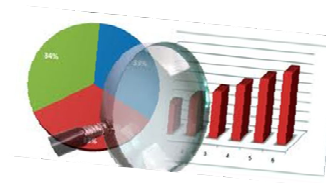


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Step 5: Data analysis

- Qualitative and quantitative
- From simple to complex
- Extra support needed: course data analysis

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



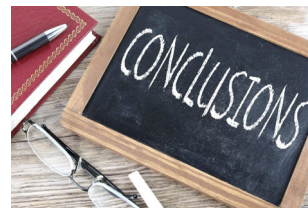
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Step 6: Interpretation and conclusions

- Is our hypothesis rejected or confirmed?
 - Rejected: go back/ further to step 2
 - Accepted: continue with step 7



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Step 6: Interpretation and conclusions

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Step 6: Interpretation and conclusions

- 32 data teams (2012-2014), 78 hypotheses:
 - 33 hypotheses: accepted
 - 45 hypotheses: rejected
 - 13 (qualitative) research questions
 - 13 hypotheses: no conclusion due to limitations of the dataset



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Step 7: Implementing measures

- Develop an action plan:
 - Smart goals
 - Task division and deadlines
 - Means
- Monitoring progress: how, who, which data?



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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

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Step 8: Evaluation (process)

- Process evaluation
 - Are the measures implemented the way we want?
 - Are the measures implemented by everyone?

- Example process evaluation:
 - Measure: start every lesson with a short repetition of percentages in the form of a quiz to increase mathematic achievement
 - Interview students: this is boring, start to detest percentages!
 - Adjust measures: repeat percentages only once a week

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Step 8: Evaluation (effect)

- Effect evaluation:
 - Is the problem solved?
 - Did we reach our goal as stated in step 1?

- Example effect evaluation:
 - Did our measure(s) results in increased mathematics achievement?



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Data team functioning and effects

- Difficult to formulate a measurable hypothesis
- Several rounds of hypotheses: First hypotheses often wrong
- 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
- Improved data literacy and student achievement
- Collaboration and dialogue crucial



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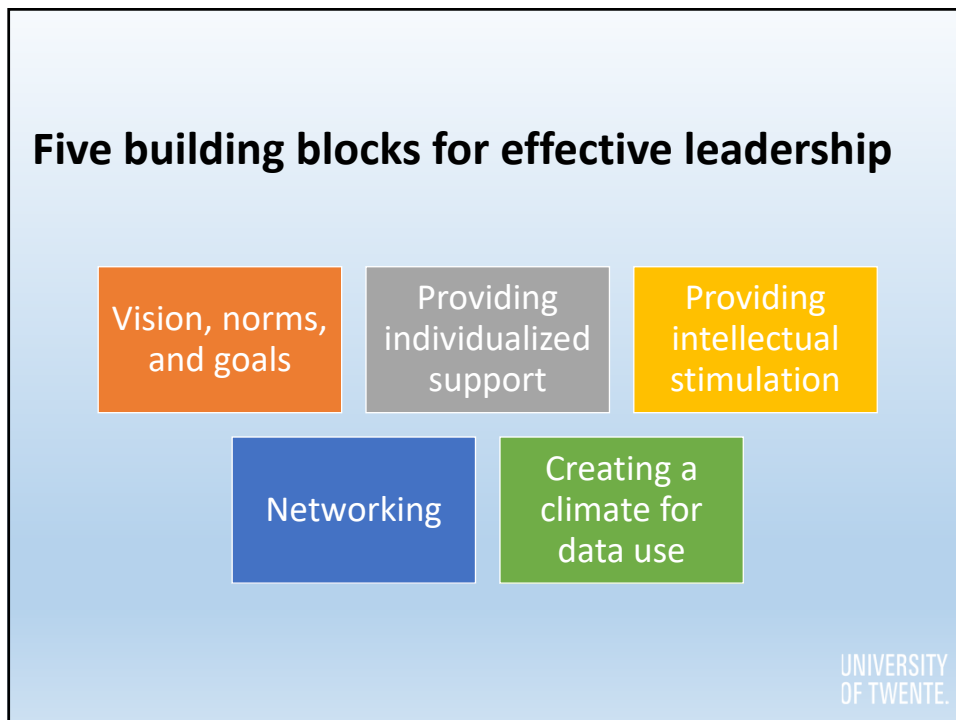
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Take away message 4:
Use data in dialogue (in a
PLC)

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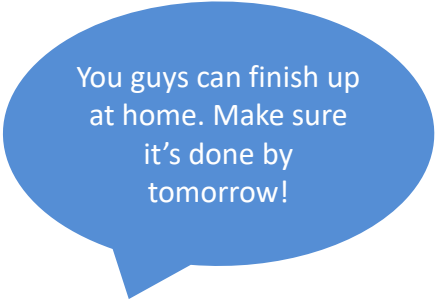


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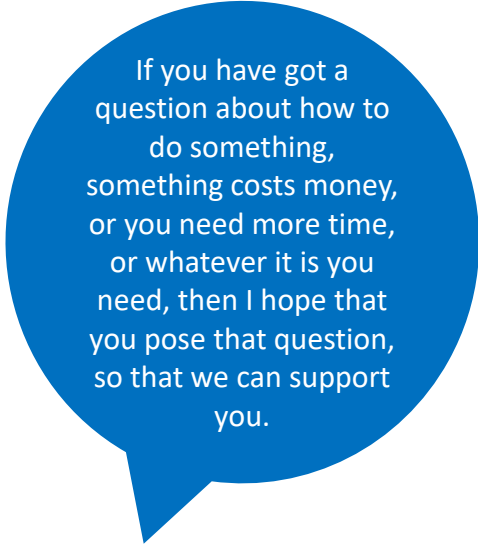
Vision	Support	Stimulation	Networking	Climate
Communicate	Time	Be part of data team	Broker knowledge	Data use for improvement
Norms and structure	Structures for collaboration	Distribute leadership	Use network to create commitment	Trust, safety, and respect
Sustainability	Emotional support	Role model, engage in data discussions	Connect data team to wider community and vice versa	Stimulate collaboration
Prioritize	Coaching and feedback	Encourage teachers to challenge beliefs		Equal collaboration
		Balance steering and autonomy		Avoid shaming and blaming

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You guys can finish up at home. Make sure it's done by tomorrow!



If you have got a question about how to do something, something costs money, or you need more time, or whatever it is you need, then I hope that you pose that question, so that we can support you.

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Only when there is a problem you hear from them. On any other occasion you don't hear anything from management

Prove it, or provide proof that supports the contrary

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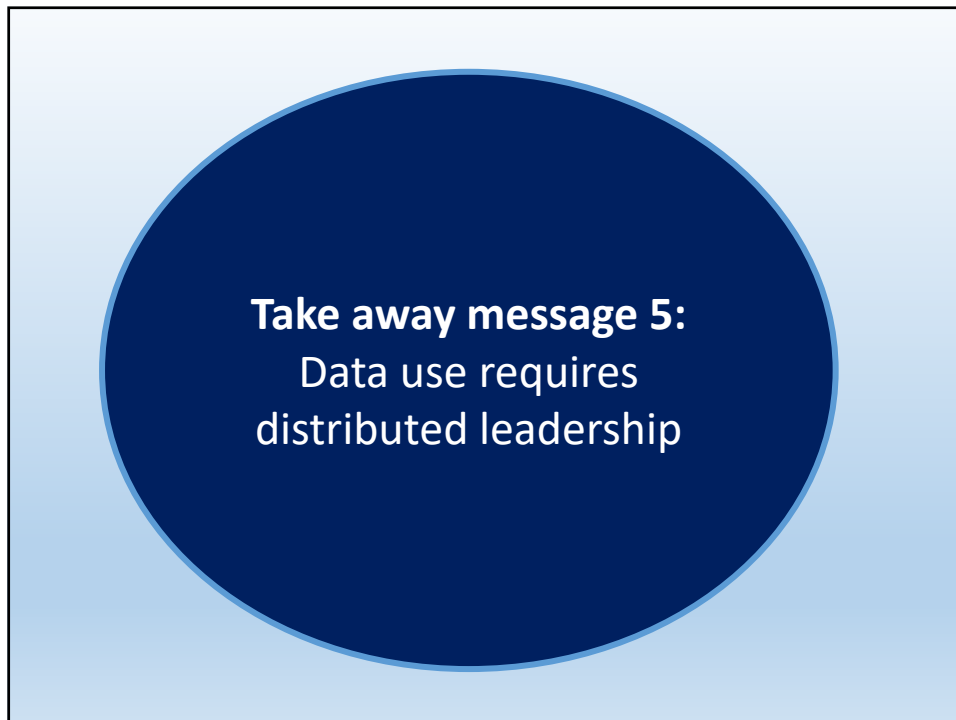


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I think it is their responsibility. . . . I try to make them look at their own functioning by making statements such as, 'I would be so ashamed if I would have so many insufficient marks'

Nobody has a hidden agenda....Everything is discussed openly, what we think, what we thought, which is very different sometimes

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Summarizing

Five messages

1. Start with a purpose
2. Use multiple data sources
3. Involve students in the use of data
4. Use data in dialogue (in a PLC)
5. Data use requires distributed leadership

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- By engaging in the **dialogic use of multiple data sources** in a PLC
- teachers, **school leaders**, and **students**
- can make more culturally sensitive and equitable decisions
- based on their knowledge of their students and the contextual factors that may impact them on a daily basis.
- This will lead to higher **quality and equity** for all students!

(Based on Mandinach & Schildkamp, 2020)

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Thank you for your attention!

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