Data-driven Teaching and School Management

Adrie Visscher
University of Twente
The Netherlands
Opbrengstgericht werken

3
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

- Board level: Evaluating & analysing results
- School level: Setting SMART & challenging goals
- Class level: Determining strategy for goal accomplishment
- Executing strategy for goal accomplishment

UNIVERSITY OF TWENTE.
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
Content mastered by students
Data on the classroom processes
## Students’ perceptions of classroom quality (1)

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

UNIVERSITY OF TWENTE.
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!
The assumption behind DBDM

Evaluation (activity)
Results of evaluation
Use of evaluation results
Improved performance
Calvin and Hobbes

A SWIFT KICK IN THE BUTT
$1.00
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

- Board level: Evaluating & analysing results
- School level: Setting SMART & challenging goals
- Class level: Determining strategy for goal accomplishment
- Board level: Executing strategy for goal accomplishment
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