Diagnosis of classroom instruction: A new tool for evidence-based improvement of teaching and learning

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**Outline**

**Introduction and overview (10’)**
- Why EMU?
- Aims
- Evidence-based diagnosis of classroom instruction

**EMU instruments (15’)**
- Brochure
- Questionnaires
- Software
- Presentation
- Video for training

**Getting started: (35’)**
- Watch a video clip of an English lesson (15’)
- Rate the classroom instruction using EMU items (10’)
- Discuss in small group
  - Exchanging explanations for your judgment where you have most diverse ratings (10’)

**Discussion in plenum (20’)**
- Results of your teamwork
- Comparison of results from different perspectives

**Prospect (5’)**
EMU – Evidence-based methods of diagnosis of classroom instruction

1: A nationwide project for improving teachers’ diagnostic competencies, funded by the Standing Conference of the German Ministers of Education and Cultural Affairs.

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- Gerlinde Lenske, Giang Pham, Anna-K. Praetorius
- Manuel Ade-Thurow
WHY EMU?
Why did we develop this program?

Teaching is complex: Doyle, 2006
- multidimensionality
- simultaneity
- immediacy
- unpredictability
- publicness
- history

Self-assessment of instructional quality is difficult:
- Nature of classroom environment: invisible processes, activities
- Self-reflection, self-monitoring: metacognition required

→ easily distorted observation by teachers
Research findings: estimation

Teachers rate their own speaking time

![Bar chart showing subjective estimation of speaking time as a percentage of total speaking time.](image)

Speaking time of teachers (in percent of total speaking time)

(DESi, Helmke et al., 2008)
Research findings: estimation

Teachers underestimate their own speaking time substantially

(subjective estimation)

(real data)

Percentage

Entire speaking time of teachers (in percent)

(DES, Helmke et al., 2008)
Why EMU?

Without a realistic self-assessment, no valid basis for improving teaching quality

Teachers need to be aware of their personal strengths and weaknesses:
- Only self-image: not reliable
- Necessity of external view via evidence-based process
- Constructively dealing with different views:
  - self-reflexion
  - constructive discussion and inspiration
AIMS AND DESIGN OF EMU
Aims of EMU

EMU = practical tool for teachers
- to get a differentiated, data-based feedback of their own classroom instruction in order to improve teaching quality
- to make aware of own subjective theories and blind spots
- to sensitize for classroom heterogeneity
- to help interpret the results and plan further steps for teaching improvement by means of cooperative effort

EMU = practical tool for schools
- to foster a cooperative work culture
- to help deprivatize teaching culture
Whom is the program designed for?

- Teachers in schools
  - Program for using in schools with 3 perspectives:
    - Teacher
    - Visiting colleague(s) (invited by teacher)
    - Students (anonym)
    - Colleagues (“virtual visiting”)

- Teacher trainees in pre-service training

- Teachers in in-service training
  - Usable for 2 perspectives: I vs. "Group"
  - Usable for own vs. others' instruction (video)
Features of EMU

- self-explanatory: for every teacher
- modular design: to meet individual needs
- for free
Evidence-based diagnosis of classroom instruction

- Diagnosis: “dia-” + “-gnosis”
  - Meaning: “to know thoroughly”

- Evidence-based diagnosis of instruction:
  - research-based indicators
  - tested instruments
EMU INSTRUMENTS
EMU instruments

- Brochure
- Questionnaires
- Software
- Powerpoint-presentation for using in schools, seminars, trainings
- Video for training

⇒ www.unterrichtsdiagnostik.info
A brochure (10 pp.) and many helpful links

- for self-organizing the program in classroom, seminar, training
- for interpreting the results
- for further steps towards a reflective practitioner

EMU

Evidenzbasierte Methoden der Unterrichtsdiagnostik und -entwicklung

Version 3.1 (17.10.2011)

EMU ist ein Akronym für Evidenzbasierte Methoden der Unterrichtsdiagnostik und -entwicklung. Es handelt sich dabei um ein Programm, das wir im Rahmen des Projekts Uddi im Auftrag der Kultusministerkonferenz entwickelt haben und das seit der Freischaltung im Januar 2011 bereits vielfach eingesetzt wurde. Weil bei EMU sicher jeder an die gleichnamige Vogelart denkt, haben wir dieses possiblen Tier in unser Logo aufgenommen.

Das auf der Website www.unterrichtsdiagnostik.de (oder www.unterrichtsdiagnostik.info) verfügbare Material umfasst...
EMU-questionnaires

- Questionnaires for students, teacher and colleagues with equivalent items
  - One concrete lesson
  - Important quality dimensions of classroom instruction (empirically confirmed):
    - Classroom management
    - Learning climate
    - Clarity and structuring
    - Activation
  - Perceived lesson outcomes
  - Additional dimensions

- Wild card zone for using other instruments or developing own items
EMU-questionnaires

Hattie (2009): A metaanalysis of over 800 meta-analyses relating to achievement

- "If the teacher`s lens can be changed to seeing learning through the eyes of students, this would be an excellent beginning" (S. 252).

Formulation of items: from each student`s perspective. Example:

- Student item: „When the teacher asked a question, I had enough time to reflect“
- Teacher item: „When I asked a question, the students had enough time to reflect“
- Colleague item: „When the teacher asked a question, the students had enough time to reflect“
Wild card areas

Additional dimensions (available for use):
- Dealing with heterogeneity
- Teacher language
- Cognitive activation
- Quality of cooperative learning
- Teachers’ health (project EMUplus)
- ...

Using other instruments: individual needs
- Other questionnaires
- Instruments from external evaluation agencies
- Self-developed items
A software for

- data entry
- visualizing results
- links to helpful tips for interpretation, planning actions

<table>
<thead>
<tr>
<th>Data entry</th>
<th>First measurement</th>
<th>Second measurement</th>
<th>Both measurements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>Click here</td>
<td>Click here</td>
<td></td>
</tr>
<tr>
<td>Teacher/Colleguage</td>
<td>Click here</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Results</th>
<th>First measurement</th>
<th>Second measurement</th>
<th>Both measurements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic dimensions</td>
<td>Click here</td>
<td>Click here</td>
<td>Click here</td>
</tr>
<tr>
<td>Wild card items</td>
<td>Click here</td>
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<td>Click here</td>
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</tbody>
</table>
EMU-software

A software for
- data entry
- visualizing results
- links to helpful tips for interpretation, planning actions

### Results of comparisons, 1st measurement point

**How to interpret the results?**

<table>
<thead>
<tr>
<th>FIRST MEASUREMENT</th>
<th>Distribution of answers</th>
<th>Mean profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLARITY AND STRUCTURING</td>
<td>Students (1, 2, 3, 4)</td>
<td>N</td>
</tr>
<tr>
<td>12 I referred clearly to previously taught materials</td>
<td></td>
<td>21</td>
</tr>
<tr>
<td>13 There were useful examples</td>
<td></td>
<td>21</td>
</tr>
<tr>
<td>14 The main points of the lesson were summarized</td>
<td></td>
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</tr>
<tr>
<td>15 I made sure that students expressed themselves clearly</td>
<td></td>
<td>21</td>
</tr>
<tr>
<td>16 The students clearly knew what they were learning in this lesson</td>
<td></td>
<td>21</td>
</tr>
</tbody>
</table>
### Individual profile vs. group profile

Where do I agree with, where do I differ from others? Why?

#### My ID: BG

<table>
<thead>
<tr>
<th>FIRST MEASUREMENT POINT</th>
<th>Distribution of answers</th>
<th>My profile</th>
<th>Group profile</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td><strong>Klassenführung</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 The lesson began on time</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2 The classroom rules were clear for students</td>
<td>0</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>3 Students could learn without disturbances</td>
<td>0</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>4 Students obviously knew what they should do at all times</td>
<td>0</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>5 The whole lesson time was used for teaching and learning activities</td>
<td>0</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td><strong>Lernförderliches Klima und Motivierung</strong></td>
<td></td>
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<tr>
<td>6 The teacher handled students’ contribution respectfully</td>
<td>0</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>7 The teacher was kind to students</td>
<td>0</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>8 The teacher let students finish speaking when they made their contributions</td>
<td>0</td>
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<td>7</td>
</tr>
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<td>9 When the teacher asked a question, the students had enough time to reflect</td>
<td>0</td>
<td>6</td>
<td>9</td>
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<tr>
<td>10 The teacher made relaxed comments</td>
<td>0</td>
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<td>11 The teacher praised students appropriately for their contributions</td>
<td>0</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>
Central question for discussion

- Links to helpful tips for interpretation, planning actions. Examples:
  - Profile: strengths and weaknesses
  - Distribution of answers: consensus and dissent
  - Explanations for dissent?
    - Explain rating by observable behaviour!
  - Subject-related consideration

- Prepare main theme for feedback discussion
- Documentation of feedback discussion
- Develop aims definition, plan interventions
- Second measurement point
GETTING STARTED
Watch a video clip of an authentic English lesson (15’)

Rate classroom instruction using EMU items (10’)

Discuss in small group

Exchanging explanations for your judgment where you have most diverse ratings (10’)

Do It Yourself
Discussion

Does your group have rather consensus or dissent?

- Where do you have most dissent opinions?
- Why?

Was was your discussion about?
Comparison: our ratings vs. teacher’s and students’ ratings

<table>
<thead>
<tr>
<th>How to interpret the results?</th>
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<tbody>
<tr>
<td>FIRST MEASUREMENT</td>
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<tr>
<td>CLASSROOM MANAGEMENT</td>
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<tr>
<td>1. The lesson began on time</td>
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<td>LEARNING-FOSTERING ATMOSPHERE</td>
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Comparison: our ratings vs. benchmark (specific reference group)

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Conditions for a successful discussion

- Mutual trust
- Collectively reflecting and interpreting
- First: Let the data speak!
- Knowledge and application of feedback rules
- No preceptive role
- Willingness to accept criticism
- Considering "mistakes" as learning opportunities
Potential and limitation

- Stimulus to consider, to reflect on own instruction to make progress

- Not an instrument to measure the instruction quality
  - e.g.: „Your instructional quality is 2,87“
  - exact calculation = measurement error
Working perspectives

Soon available: English version, Vietnamese version

Continual enrichment and improvement

Increasing use:

- EMU website: ca. 30,000 visits, 8500 returning visits
- EMU instruments: ca. 20,000 downloads since January 2011
- Users from 39 countries
Usage statistics
(11:12 a.m., 23.11.2011)

Country

<table>
<thead>
<tr>
<th>Country</th>
<th>Visits</th>
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<td>Germany</td>
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<tr>
<td>Switzerland</td>
<td>900</td>
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<tr>
<td>United States</td>
<td>692</td>
</tr>
<tr>
<td>Austria</td>
<td>372</td>
</tr>
<tr>
<td>Italy</td>
<td>100</td>
</tr>
</tbody>
</table>

8628 returning visits
Discussion

Whether and how can the program be used effectively in school and/or teacher education?
Thank you for your attention!

More information at:
www.unterrichtsdiagnostik.info

Email:
unterrichtsdiagnostik@gmail.com