Assessment for learning

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ASSISTME

Outline

- What is assessment?
- An educational experiment
- The two sides of assessment
- Formative assessment methods
- The importance of learning progression
- Goal-orientation and student motivation
- Combining formative and summative use of assessment

What is assessment?

Assessment = judgement, evaluation
- typically according to some criteria
- based on some data

Assessment implies *measurement* (collecting evidence with a specific method) and *judgement* (interpreting the evidence).

Any measurement measures what the measuring device can measure – not necessarily what you are interested in (a question of *validity*)

Any judgement has an element of subjectivity (a question of *reliability*)

An assessment experiment

Students divided into four groups (app. 90 students each):
A: got marks/grading for their assignments
B: only comments for their assignments
C: both marks and comments
D: no feedback (control group)

Pre- post test:
A: not better than the control group
B: 30% better than the control group
C: not better than the control group (like A)

(Ruth Butler 1988)

Point: Giving marks does not enhance learning, while commenting and giving feedback does.

Two main purposes for assessment

Summative assessment: Assessment of individual achievement (in order to monitor educational progress and to compare student learning to the standards of performance or to their peers).
Assessment *of* learning.

Formative assessment: Assessment to assist learning (trough providing teachers and students with feedback – for the teachers to revise their teaching and for students to monitor their own learning).
Assessment *for* learning.

The terms describe the purposes for which the assessment is done, not the assessment itself!

The effectiveness of formative assessment

In his metastudy 'Visible Learning' John Hattie (2008) is comparing the effectiveness of various educational interventions. Growth Effect Size 1,0 equals the knowledge growh during 1 year of schooling. Hattie seeks effects above 0,4.

- Take the same year once more (-0,18)
- Teacher subject matter knowledge (0,09)
- Teacher in-service training (0,12)
- Student learning styles (0,18)
- Reduction of class size (0,21)

- Student self-reporting grades (+self-efficacy)(1,44)
- Teacher credibility (1,07)
- Formative assessment (0,90)
- Class discussions (0,82)
- Feedback (0,75)
- Student-teacher relations (0,72)

(teacher professional development (d=0.62))

(conference with John Hattie and Martin Renton, Ringsted/Denmark, 20.11.14)

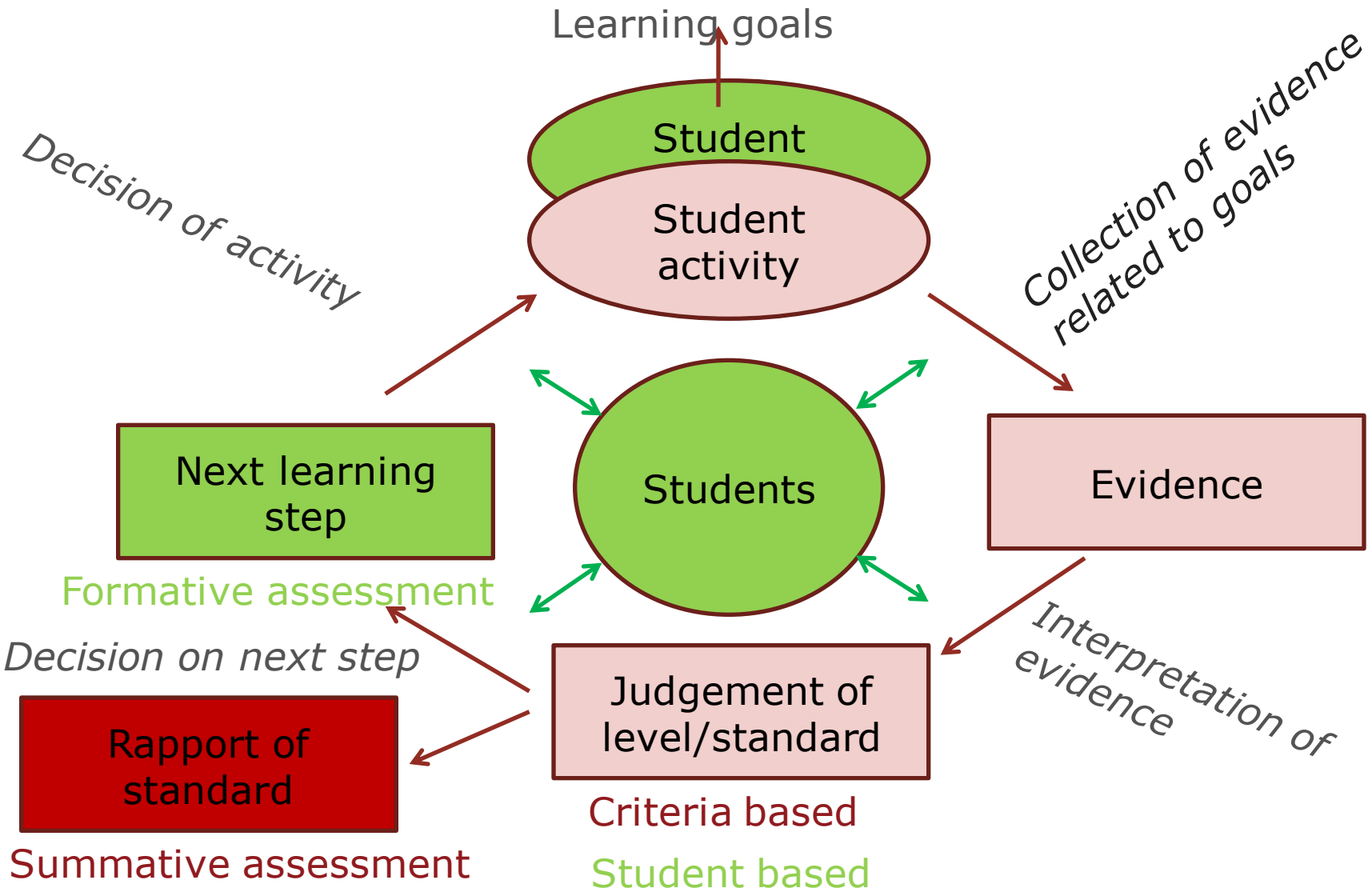
The two sides of the assessment spectrum

FORMATIVE internal use - continuous	**SUMMATIVE** external use - final
emphasis on the processes	emphasis on the products
focus on improvement	focus on ranking and comparing
failure is a possibility for progress and should be encouraged	failure is a disadvantage and should be hidden
advising and counselling	controlling
teacher as a consultant	teacher as a judge
aimed at student and teacher	aimed at a third party
freedom in the choice of methods	determined by other
Emphasis on *validity* (do you measure what you want to measure)	Emphasis on *reliability* (do you measure stable and neutral)

Big learning potential

Little learning potential

Formative and summative assessment of learning



(based on Wynne 2013, Dolin et al in progress)

Feedback

The feedback shall reduce the distance between the individual student's actual level and the learning goals in the curriculum.

3 Key questions for feedback

1. Where am I going?
2. Where am I now?
3. What are my next steps?

(From Martin Renton)

The feedback needs to:

1. Clarify the professional demands/goals
2. Make the students assess their actual level
3. Give the students input to reflect over their own level in relation to the demands
4. Give the students strategies to come closer to the goals.

Who can give feedback to whom?

Teacher can give feedback to student

Student can give feedback to teacher

Student can give feedback to student (peer-feedback)

Student can give feedback to him/herself (self-assessment)

Formative assessment activities and strategies

Black and Wiliam (2012, s.208) suggest four activities to implement formative assessment:

- Classroom dialogue (on-the-fly, discussions)
- Comment-only marking (written feedback)
- Self- and peer-assessment
- Formative use of summative tests (structured assessment dialogue)

By combining the three feedback steps with the three agents in formative processes, they have five key strategies for formative assessment (p.209):

	Where the learner is going?	Where the learner is right now?	How to get there?
Teacher	1. Clarifying learning goals and criteria for succes	2. Facilitating discussions and tasks that elicit evidence of student understanding	3. Providing feedback that moves learners forward
Peer	Understanding and sharing goals and criteria	4. Activating students as instructional resources for one another	
Learner	Understanding goals and criteria	5. Activating students as the owner of their own learning	

Self-assessment

Self-assessment is the foundation for individual improvement – to know precisely what you can and to be able to relate this to the learning goals.
Self-assessment is closely related to metacognition.

Self-assessment learns the students self-regulating processes
- setting goals
- assessing own effort
- reduces teacher dependency
- increases motivation and engagement.

Self assessment is also a mode to reduce teacher assessment working load.
Three basic forms of self-assessment:
- marking yourself (placing on a scale)
- judging how good you have managed a task (a narrative)
- classifying yourself according to a qualitative characteristics of the learning goals (eg a rubric)

Self-assessment involves big uncertainty, like self-overestimation, lacking knowledge of the criteria (eg confusing work effort with professional level).

Peer-assessment

Feedback from peers and teachers is content wise quite alike – but students praise more than teachers

The student giving feedback benefits as much from the feedback process as the receiver

Peer-feedback needs instruction and support (eg. rubrics)

Some research shows that peer-assessment is qualitatively and as for reliability as good as teacher feedback – other research shows the opposite

The challenge for peer feedback is to cover the whole curriculum and to meet the right level and especially to reach the high levels.

(Based on Topping 2013)

ASSIST-ME findings about peer-assesment

The French study shows that most of the students are able to give a proper feedback (and marking), consistent with the one that an expert (researcher/teacher) could give without any teacher correction. Even students with a low achievement rate manage to mark their peers.

The Swiss study shows that the validity of peer feedback is related to the quality of students' understanding

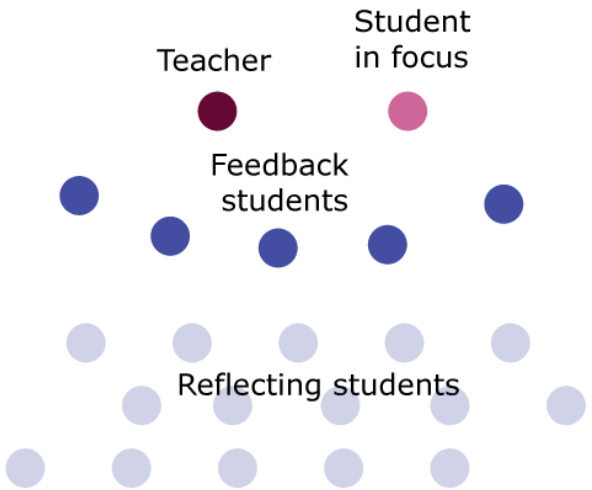
In a Danish classroom with an achievement culture, peer feedback could potentially be seem as criticism:
I don't think there are any easy solutions to this, because when they don't give proper feedback by criticising, so to speak, then it is probably because they don't want to be mean to the person who has just been up there performing and undermining it and so on.

Across countries: Peer assessment can be a way to trigger a metacognitive work on knowledge and competences and about assessment criteria and teachers expectations, at a class level and student level.

The structured assessment dialogue

A ritualized assessment process in three phases.

Setting different from ordinary teaching



5 minutes dialogue between teacher and a student chosen in advance following a teacher-prepared script covering the selected competence

5 minutes peer feedback

3 minutes student self-reflection

The student-teacher dialogue emulates an oral examination – high degree of student confidence.
The peer feedback session gives a general rehearsal for peer feedback.
The self assessment session gives all students an opportunity for reflecting on their level and way forward.

The importance of learning progression

To be able to assess formatively you need
"… a sound model of students' progression in the learning of the subject matter, so that the criteria that guide the formative strategy can be matched to students' trajectories of learning"
(Black and Wiliam 1998, p. 37)

A learning progression is a stepwise description of a more and more complete understanding of a domain or mastering of a competence. The challenge is to establish precise criteria for each step and to find a degree of detail that makes it possible to steer without limiting.

Traditionally, progression is understood as a taxonomy, i.e. a generic hierarchy within for instance cognitive ability (Bloom's taxonomi) or relational ability (SOLO taxonimy).

Working with learning progressions

Group wise teachers formulated learning progressions for their sequences of lessons covering a domain. They were given a template (a progression chart):

	What the student should be able to do …		
	…as a satisfactory performance	…as a good performance	…as a very good performance
Sub competence 1	*The student can … (criteria 1a)*	*The student can … (criteria 1b)*	*The student can … (criteria 1c)*
Sub competence 2	*The student can … (criteria 2a)*	*The student can … (criteria 2b)*	*The student can … (criteria 2c)*

The number of steps were different from country to country (Dk 3, F 4, Eng 5) and were also adapted the purpose.

”It required much preparation to think it through with the progressions and such. You have them somewhere, in the back of your head, but to articulate them and do it so you can give them to the students all of a sudden …”

Making high-quality learning progressions is difficult

This was a challenge across all assessment methods in the ASSIST-ME project. It was especially challenging with the project's focus on competencies.

Discussions and cooperation with colleagues can be helpful:
"I work with a colleague in this class and that makes it much easier because then you can sit down and discuss it there. I think it helps to be two, you can discuss what kind of progression steps it is and how we can write them down."

New insights about progression

”The progression is often in how much you can, more than in differences in (cognitive) levels.”

”The generic steps (like the Bloom taxonomy steps) wil be very different from subject to subject – the one we make in biology will not at all be usable in mathematics. Explain in mathematics kan be on a high level, while it is low in another subject.”

It turned out to be an experience by many ASSIST-ME teachers that the students’ learning (and the teachers’ teaching) did not follow a linear path like a traditional taxonomi. It was rather like stepping stones spread over the area of the domain.

Advantages and disadvantages of working with progression

”I find it unfortunate if you teach in a way that focus entirely on the progression steps. You loose something – it becomes more about performing in stead of learning. The more you describe it in details the more focus on ticking off that and that competence. If we always focus on how the students can assess them-selves, we remove the curiosity and the joy and focus on how to perform.”

”But they will get a judgement sooner or later, anyway, and we have many students that are driven by performance.
And the visualization should also help the students to steer their own learning processes, that is some meta-goals with the exercise. Its a difficult balance.”

Goal driven teaching = instrumentalisation (?)

”From a human perspective, something is hurting me by this visible learning where you represent the human as a rational thinking creature. But I don’t think it is like that all the time. I more believe in curiosity and the incomprehensible – I think we loose a lot by doing it. I think it uses a wrong understanding of how people learn. Or the ‘general education’ (literacy, bildung) – where is it in the progression plan?”

Performance orientering vs mastery orientering

”**Mastery goals** focus the individual on the task at hand and relate especially to developing competency and gaining understanding and insight.
Performance goals focus the individual on the self and relate especially to how ability is judged and how one performs especially relative to others. These achievement goals are associated with different patterns of cognition, affect, and behavior.”

Midgley et al 2001

Consequenses of a performance orientering

Performance oriented students avoid the unknown and challenges, they avoid to ask for help and they are unwilling to cooperate with peers. (Midgley et al., 2001, s. 82-83).

Feedback is aimed towards mastering, and it is difficult for students with a performance orientation to benefit from formative feedback.

There is a strong evidence that external rewards undermine the *internal motivation*.
There are indications that *external motivation leads to* 'surface'- rather than 'deep' learning.

(Harlen 2012, p.174, egen oversættelse)

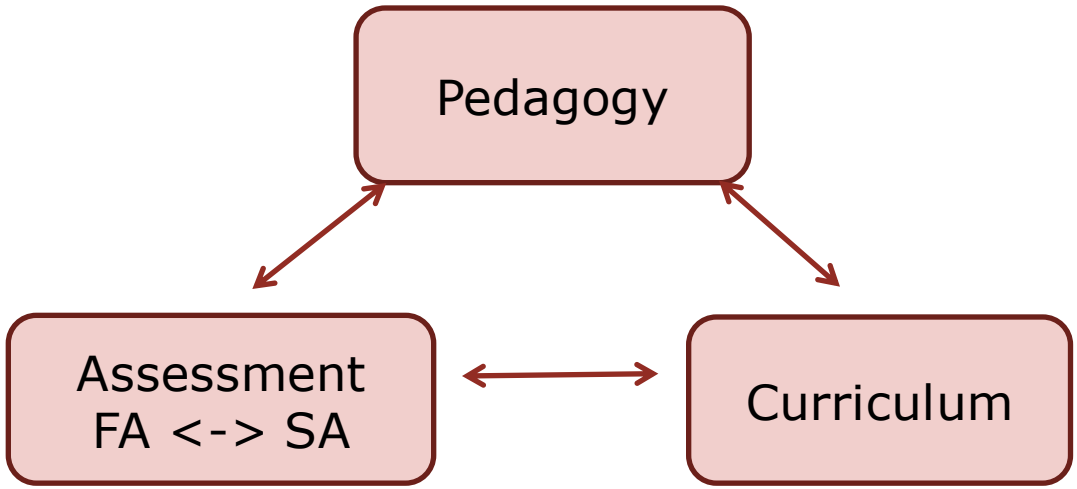
The two motivational approaches *can* be present at the same time, but it is a delicat balance (Skaalvik & Skaalvik, 2013).
Midgley et al (2001) conclude that ”Research indicates that performance goals may be adaptive for certain students in certain circumstances as long as mastery goals are also high” (p. 83), but underline that ”… a problem arises only when proving ability becomes so important to students that it drives out mastery goals” (p. 83).

Cho and Chim (2013) show how teachers’ self-confidence and self-esteem (self-efficacy) influence their actions in a performance oriented system. Teachers with high selfefficay are able to take mastering hensyn even in a system præget af competition and resultatmål alligevel tage mestringshensyn, while teachers with a low selfefficacy will orient their teaching towards performance.

Assessment, pedagogy and curriculum

Conceptions of teaching and learning

Transmission - interpretation



Evaluation paradigm

Post positivistisk – socio-cultural

Goal categories

Information/knowledge - competences

Point: There need to be alignment between goal category, pedagogy and assessment (and between the formative and summative assessment). New learning goals point to new pedagogy and new assessments.

Formative-summative continuum?

Formative<----------->Summative				
	Informal formative	Formal formative	Informal summative	Formal summative
Major focus	What are the next steps in learning?		What has been achieved to date?	
Purpose	To inform next steps in learning	To inform next steps in learning and teaching	To monitor progress against plans	To record achievements of individuals
How is evidence collected	As normal part of class work	Introduced into normal class work	Introduced as a special part of normal class work	Separate task or test
Basis of judgement	Student- and criterion-referenced	Student and criterion-referenced	criterion- and student-referenced	Criterion-referenced

Can you combine the formative and the summative use of assessment?

The same evidence gathered for formative assessment can be used as evidence for summative assessment, but now judged against the goals stated in the curriculum.

Teachers can use evidence from ordinary activities supplemented by evidence from specially devised tasks, and typically collected via portfolios or IT-based methods.

Evidence used to report on learning for summative purposes has to be judged in the same way for all students, not influenced by student-related considerations, so, it has to be separated from the formative use.

This needs to be organised in a way that is not violating students' premises for their work and their learning engagement, eg with a clear distinction between formative and summative use of the data (not to break the didactical contract) and with other ethical consideration.

Conclusions

Enhancing the use of formative assessment in school is probably the most effective way to enhancing learning

To introduce formative assessment methods takes a lot of work

To use assessments formatively and summatively, they need to be well structured and performed quite stringent and reliable

Such a use requires a strong learning/goal oriented structuring (establishing learning progressions) of the teaching – which will change the classroom – for good and for bad

A combined use of the assessment evidence is difficult due to the didactical contract in some classrooms (educational systems) while in other classrooms (systems) it is a natural part of the culture

Formative assessment is not taking time from the teaching – it *is* teaching!

Assessment of learning -> Assessment for learning -> Assessment as learning

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ASSIST-ME overall recommendations

A competence-oriented, inquiry-based pedagogy is important

The project points at ways to implement such a competence approach in different educational cultures and recommends adjusting educational policies to make this possible.

Focus on formative assessment to support competence-based inquiry learning

It is therefore necessary to promote a teaching approach integrating formative assessment into the classroom culture and to frame the educational condition, resources and the curriculum to make it happen.

Reduce the emphasis on summative assessment to give room to formative assessment

It is recommended to develop national assessment policies that recognise the different roles and potential involved in the interactions between formative and summative assessment and that makes it possible to realise the full potential of formative assessment processes.

Develop new examination forms able to capture STM competencies

The project points at ways to implement such a competence approach in different educational cultures and recommends adjusting educational policies to make this possible.

Teachers need support in implementing and enacting classroom assessment of STM competencies