KTH Education and Communication in Engineering Science

Assidere necesse est necessities and complexities regarding teachers' assessment practices

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Edited

Please follow @evahartell #rEDAdam

Haninge kommun

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The Swedish educational system

- National curriculum (knowledge and criteria based)
- ***Teacher based assessment***
- Pre-school
- **Compulsory school ((6)7–16)**
- Upper-secondary school (16–18)
- Municipality (290)
- And free-schools (xx)

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Compulsory school subjects y 1–9

- Swedish /Swedish as a second language
- **Biology**
- **Physics**
- **Chemistry**
- Crafts (sloyd)
- Home and consumer studies
- History
- Civics
- Religion
- Geography
- Physical education and health
- **Mathematics**
- English
- Music
- Modern languages (“optional”)
- Mother tongue (voluntary)
- Art

- Technology (*teknik*)

Aims

Core content

Knowledge requirements y(3), 6 & 9

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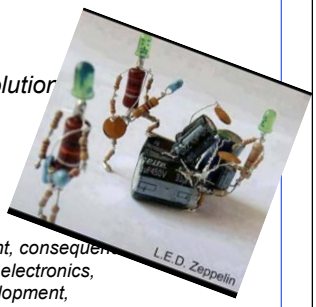
Core content (kind of crowded…)

- *Three strands for y 1–3, 4–6, & 7–9 (not scripted when and how)*
- *Technological solutions*
- *Working methods for developing technological solution*
- *Technology, man, society and the environment*



- **Core content include** (but are not limited to)
  mechanics, materials, different phases of technical development, consequen of different choices, sustainability, environment, digital models, electronics, automatic control, history, technological systems, product development, construction, attitudes, and technology’s relation to the sciences, to society at large, and to the fine arts.

- *And soon (most likely) programming/computational thinking as well…*

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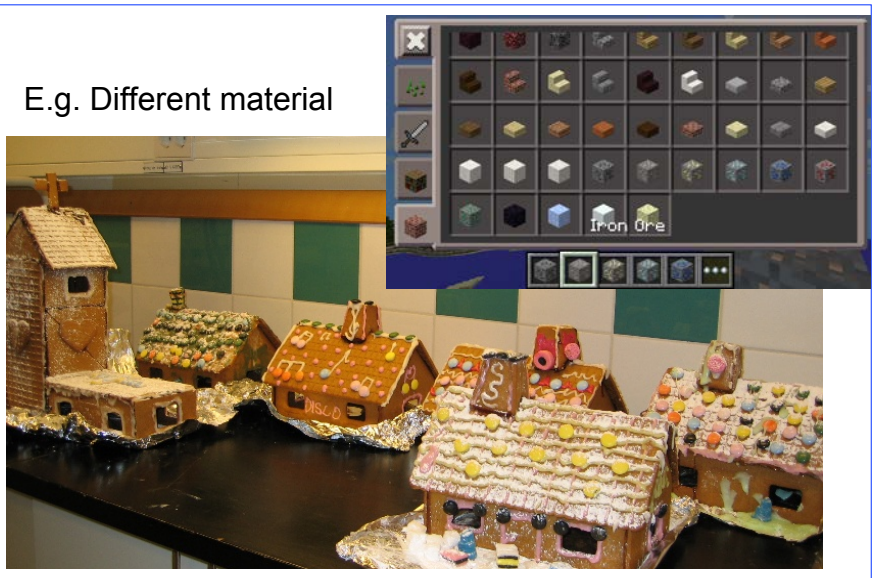
E.g. Different material



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Teaching ≠ learning

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Assidere necesse est

A teacher who fails to assess what the students do, cannot decide whether or not she is contributing to or impeding their progress. (L. Lindström, 2006)

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Short summary of *ASSIDERE NECESSE EST*

Necessities and complexities regarding teachers' assessment practices in technology education . Hartell (2015) doctoral thesis

This thesis is about:

1. Teachers' assessment practices in order to move their pupils forward

2. *Assessment as the bridge between teaching and learning*

… in the younger years of schooling

In Sweden…

Four sub-studies

1 Mandatory assessment documents (long cycle afl)

2 Classroom assessment (short cycle afl)

3 Teachers' self-efficacy

4 WHAT (e-portfolios & comparative judgements)

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Substudy 1
Teachers' documenting practice

•*Exploring the (un-) usefulness of mandatory assessment documents in primary technology.* Publicerad i International Journal of Technology and Design Education. (2014), 24:141-161

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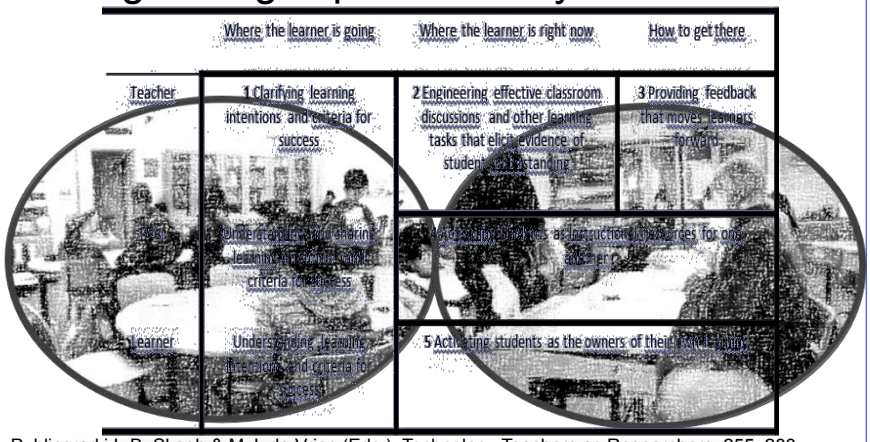
Sub-study 2. Teachers' classroom practice
Looking for a glimpse in the eye



Publicerad i I.-B. Skogh & M.J. de Vries (Eds.), Technology Teachers as Researchers, 255–283.

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Sub study 3 Investigating teachers' self-efficacy on assessment

Teacher education or not?

Reported achievement…

•Hartell, E., Gumaelius, L., & Svärdh, J. (2015).
•Investigating technology teachers' self-efficacy on assessment.
•Publicerad i *International Journal of Technology and Design Education. 25 (3),2015 Pp 321-337* DOI 10.1007/s10798-014-9285-9

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Sub-study 4 Criteria for success?

Hartell, E. & Skogh, IB. (2015). Criteria for success: A study of primary technology teachers' assessment of digital portfolios. Published in *Australiasian Journal of Technology Education*
http://www.ajte.org/index.php/AJTE/article/view/27

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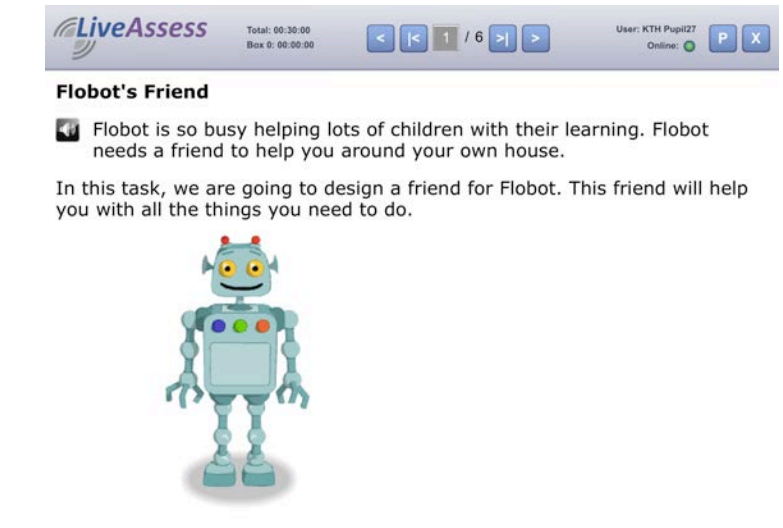

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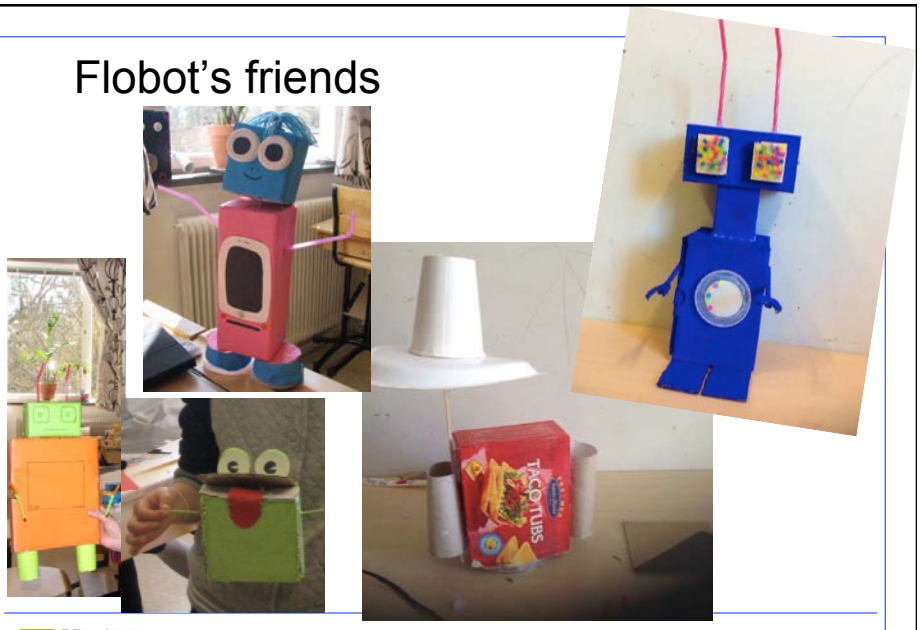
Flobot's friends



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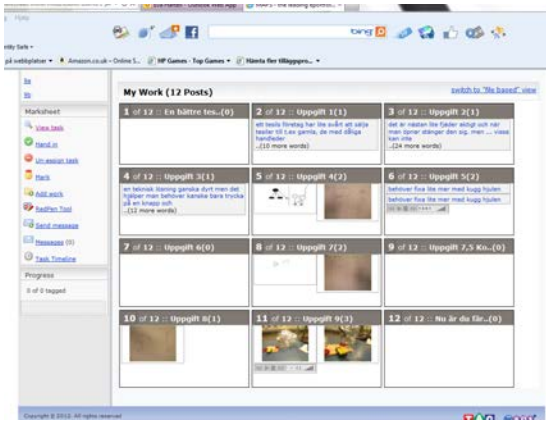
Students collected their evidence of learning in multimodal (cloud) e-portfolios using ipads.



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Teachers then assessed student portfolios w comparative judgements

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The power of the collective

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Findings from substudy 4
What were these teachers looking for?

Three strands

- Whole
- Particular
- Other

- Consensus within this group of educated teachers
- The whole rather than the particular
- "Red thread" (narrative/story)
- but also completing the task (*Valid tasks and time and opportunity to learn is needed. Not leave pupils in their own unreflective "doing/making"*)

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Results doctoral thesis

- Pupil/ student
- The inefficient loneliness-Teachers are alone and cover for planning, execute and follow-up pupil's progress.
- *Preconditions for teaching and learning must be enhanced*
- The overall results strengthen the importance of engineering activities and that students should be taught and not left to unreflective doing in technology
- *Support is both needed and asked for*

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Affordance for teachers' assessment practices must be increased to bridge teaching and learning in technology

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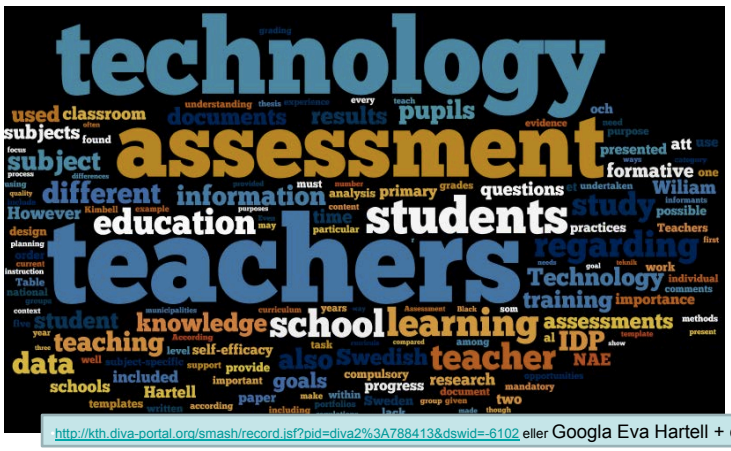
Necessities and complexities regarding teachers' assessment practices



http://kth.diva-portal.org/smash/record.jsf?pid=diva2%3A788413&dswid=-6102 eller Googla Eva Hartell + diva

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Contribution

- We know more about the reported goal fulfilment prior to grading
- Strengthened the importance of designing activities and that students should be taught and not left to unreflective doing in technology
- We know more about how assessment is undertaken in the technology classroom and what teachers are focusing on- contributed to emphasise the importance of the interaction/relationship in the classroom and put the spotlight on what counts
- We know that the educational environment is not supportive enough at the moment
- **We know that affordance must increase- the question is how**
- **Strengthened the importance to dig deeper into assessment in different contexts**

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Where to next/now

Providing affordance for teachers' assessment practices in order to bridge teaching and learning (in technology)

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”..*if you are serious about raising student achievement then you have to be focusing on AfL [Assessment for Learning], and if you are not focusing on AfL you are probably not serious about raising student achievement*.” (Dylan Wiliam, 2009, p. 34)

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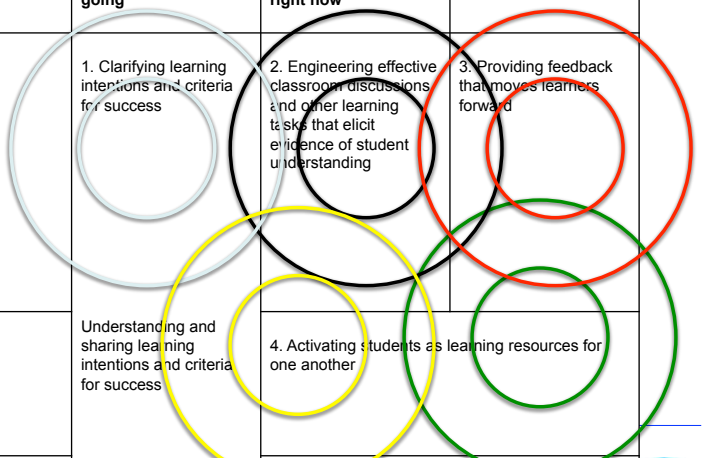
Five key strategies for formative assessment (Wiliam, 2009)

	Where the learner is going	Where the learner is right now	How to get there
Teacher	1. Clarifying learning intentions and criteria for success	2. Engineering effective classroom discussions and other learning tasks that elicit evidence of student understanding	3. Providing feedback that moves learners forward
Peer	Understanding and sharing learning intentions and criteria for success	4. Activating students as learning resources for one another	
Learner	Understanding learning intentions and criteria for success	5. Activating students as owners of their own learning	



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Teacher**L**earning**C**ommunities

Tender Love Care

Embedded formative assessment packs

by Dylan Wiliam and Siobhan Leahy (SSAT/NoK)

Love the one you are with

Knowing ≠doing

9 + 9 ws once a month for 2 years
(not dependent on school year)
Not dependent on external expert
Tight but loose structure
Include peer observation where the observed sets the agenda
This framework provide great support!

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Provide affordance for teachers assessment practices with Teacher Learning Communities

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Subject (& context9 specific assessment
Assessment in sTEm is difficult

- Context
- Purpose and content
- Crowded and broad curriculum
- Design and history of technology
  - not taught the same way-not assessed the same way
- What is a reasonable level of knowledge? Progress?
- Construct definition
- Preconditions for teaching and learning….

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1. Clarifying learning intentions and criteria for success

- Jönsson (2008)
- Wiliam!
- sTEm?
- Big hairy audacious goals…
- Open ended..

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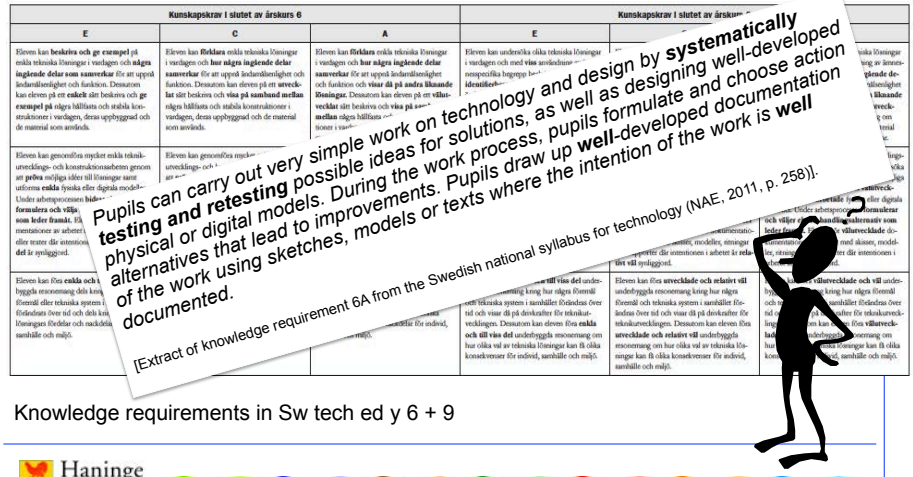
Can the Swedish national syllabus help w baering of forward & progress?



Knowledge requirements in Sw tech ed y 6 + 9

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1. Clarifying learning intentions and criteria for success

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Rubrics and transparency?

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Elaborating on exemplars possibilities w comparative judgments

Hattie (2009)
Wiliam & Leahy (2015)
Kimbell & Stables work

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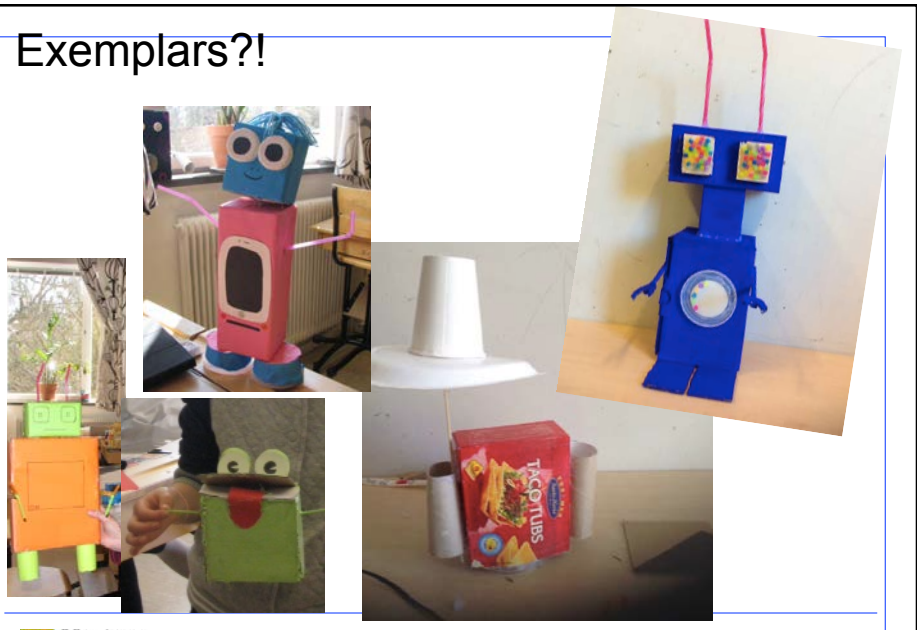
Exemplars?!



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Exemplars!

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What about this?

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Choose your exemplars carefully….

- The way you view your subject is reflected in your practice
- How do you and your colleagues view your subjects?
- Construct definition (agree or disagree?)

- Exemplars can be useful to point out directions…Clarifying learning intentions and criteria for success (compare w study 2)
- CJ as sorting mechanism?

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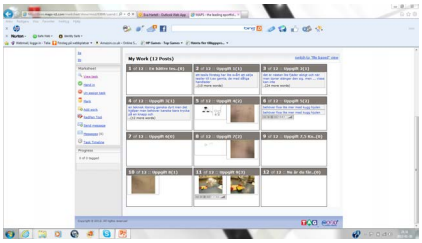
Providing affordance for teachers' assessment practices via CJ

A



B

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E-portfolios & Comparative judgement

- Data is collected during "ordinary" lesson activities
- Students collect evidence of learning (validity(?) & teachers work load)
- Decision driven data collection instead of data driven decision making
- Reliable results
- Inviting other professionals to your classroom and you get to visit theirs "without too much trouble" (cloud-based)
- *The power of the collective*

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Results from three trials

- V high reliability

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What did the teachers think of CJ

- *Fun! A bit insecure in the beginning, but I felt more confident after a short while.*
- *It was amusing/fun and I learnt a lot. It is easier to assess this way. Compare two at a time. I like the idea that we are more who co-assess*
- *Interesting. Different.*
- *Fun!! But tiny internet connection problems…*
- *This was really interesting! Took a while to see and understand what I was supposed to look for. Purpose got more explicit on what qualities I were looking for.*
- Nice to see other than my own students' work

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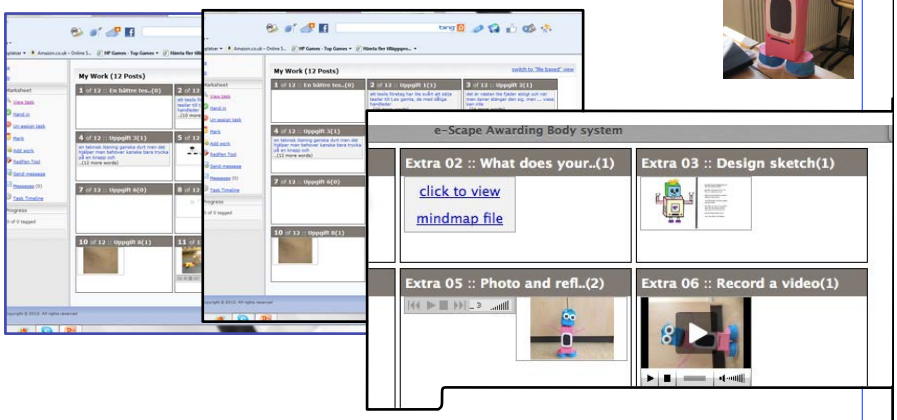
What I would like to work out if it works



Plus perhaps some descriptors from teachers' think a louds

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Invite pupils to ask questions

- Wonder wall
- Exit notes
- Items
- Alone, pairs, groups
- Analogue and/or digital

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2. Engineering effective discussions, tasks and activities that elicit evidence of learning

And not leave them alone
In unreflective doing/making

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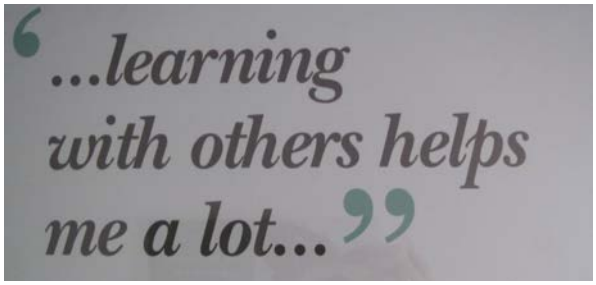
4. Activating learners as learning resources for one another
5. Activating learners as owners of their own learner



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Providing affordance through e-portfolios and CJ -Eva's thoughts

- Inviting other professionals to your classroom and you get to visit theirs "without too much trouble"
- Exemplars (Hattie, 2009, Wiliam, 2016)
- Construct definition
- Connoisseur of ~~wine~~ S TEM
- Professional development – building teachers' assessment literacy & self-efficacy?
- Teacher work load
- The power of the collective
- For students!
- Equality / equity in assessment

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- Purpose of assessment must be clear
- No need for 1:1
- Teachers and students LOVE it, loving is not enough…

- Importance of task design! (I really recommend the work of Emeritus Professor Richard Kimbell and Professor Kay Stables at Goldsmiths.)
- Decision driven data collection

- SEN
- Newly arrived/immigrants?! Translanguaging!

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ASSIDERE NECESSE EST

Necessities and complexities regarding teachers' assessment practices in technology education

To be continued…

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February 4th! #rEDHan

researchED Leads Network Day HANINGE 2017

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Thanks for listening!
Good luck and keep in touch

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- Twitter @evahartell

- See you in Haninge Feb 4th! #rEDHan

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References

Doctoral thesis Assidere necesse est
http://kth.diva-portal.org/smash/record.jsf?pid=diva2%3A788413&dswid=-6102

Licentiate thesis The inefficient loneliness
http://www.diva-portal.org/smash/record.jsf?pid=diva2%3A565600&dswid=7401

Papers

- My favourite book Wiliam, D. (2009). *Assessment for learning: why, what and how? An inaugural professorial lecture by Dylan Wiliam*. Institute of Education University of London.

Swedish school system, curricula etc

- Adult http://www.skolverket.se/publikationer?id=3238
- Upper secondary http://www.skolverket.se/publikationer?id=2975
- Compulsory school http://www.skolverket.se/publikationer?id=2687
- Pre-school http://www.skolverket.se/publikationer?id=2704

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