

Developing integrated learning environment – analysis

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History and arguments




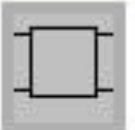



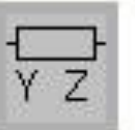
- In early 2000s everything from classical courseware was transferred into internet
- However, that was rather change of carrier than a new environment
- Welcomed by students and followed by new target – control for learning (obtaining knowledge and skills)
- History of conclusions, decisions by years



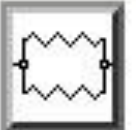






2003




- Home works, lab reports were in databases
- Processing lab results in-site was introduced
- Lectures were recorded as audio files –
nobody used them
- Self-planning of actions - **failure**
- First instance of Learning Court was implemented – **became extremely popular**








$L[1] = \frac{1}{s}$

$\frac{1}{s+1}$


$I = \frac{V}{R}$





 $2+j3$







2004

Fully web-based

however, classical style

2005

- Representation of course as a set of assignments (0.1 ...0.25 cu each)
- **NO to deadlines** (finally!)
- **No limit for repetition of assignments**
- First use of HomeLabKits –
decision to use only this hardware

FRES 3PH CT3

FR SR RES TR LRMS

ACC RMS AC CT2

ACT Ph 2P NLR CT1

DCT2 TP NT

DCT1 TNC KL OL

KCL KVL M

Assignments

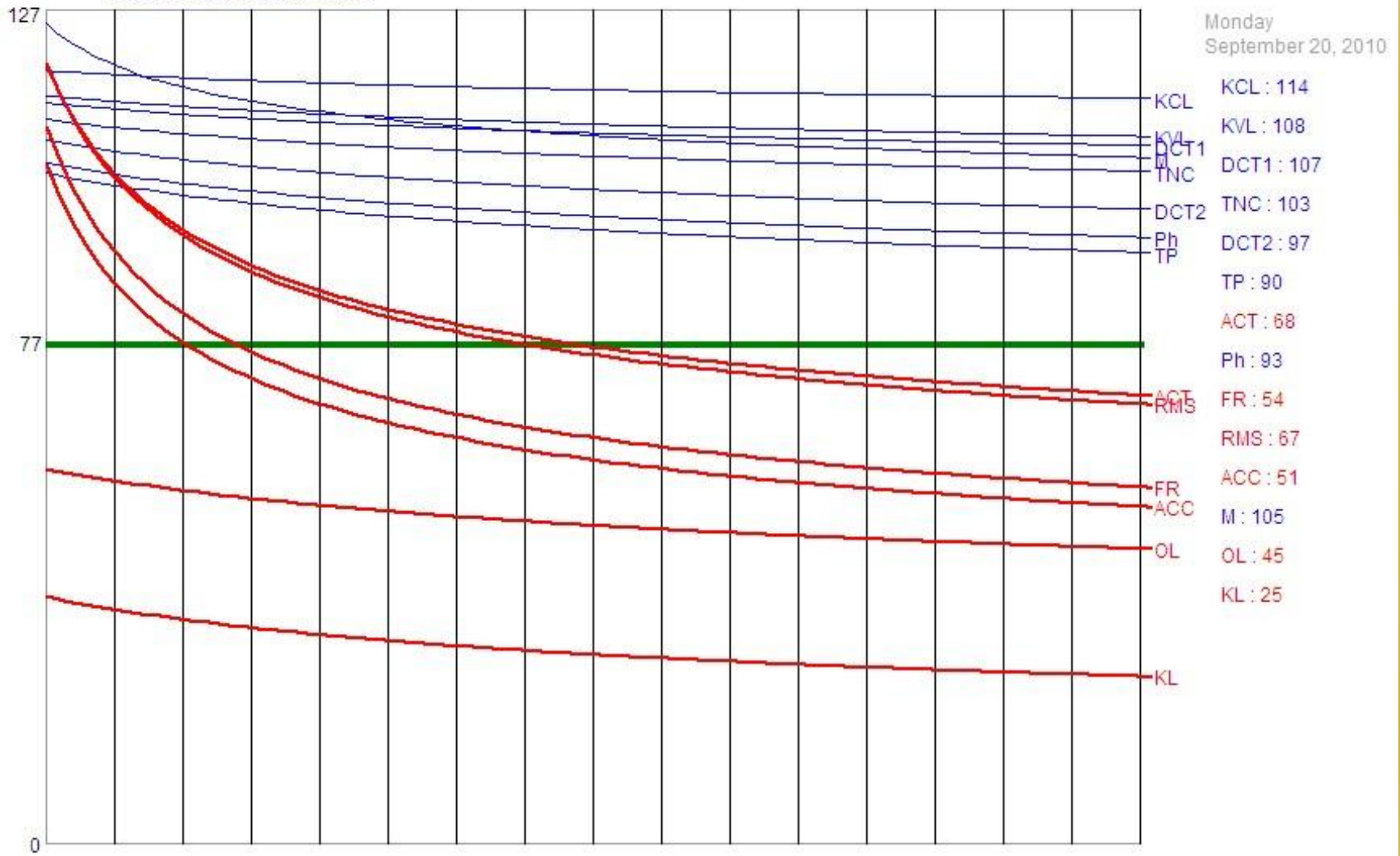
1G HomeLabKit



2007

- Introduction of forgetting model (assignment level is decreasing in time)
- Atomizing lab experiments
- Second generation of HomeLabKits
- Lab experiments included in class tests (microexams)

Repetitio est mater studiorum



16 week prediction, 77 is critical level

Phasors: RC

Find gain amplitude in dB and phase shift in degrees

Equipment: ACSourceScope, RES0364 ja CAP0026

Instant
processing!

Set source frequency to 1220 Hz

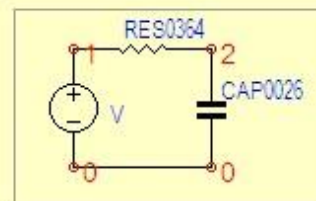
Measure voltage gain (output nodes 2 and 0)

Calculate gain in decibels

dB

Measure output voltage phase shift with respect to input

°

Input (CH1):
nodes 1 and 0Output (CH2):
nodes 2 and 0



2G HomeLabKit

2008

- **Forming learning fields** – several courses based on the same field
- Example: field CT (Circuit Theory) – totally 7 different courses, assignments of all courses visible (also different schools)

Final grade is accepted by student

ISC0011

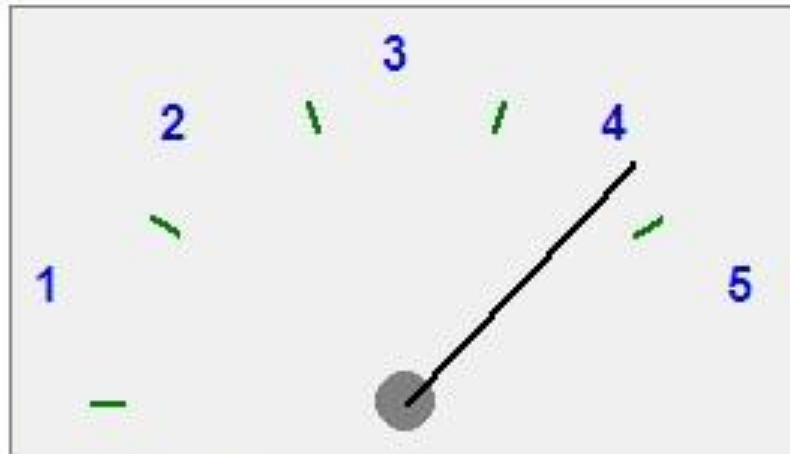
Grade now: 4

My choices:

1. Continue improving

2. This grade satisfies me:

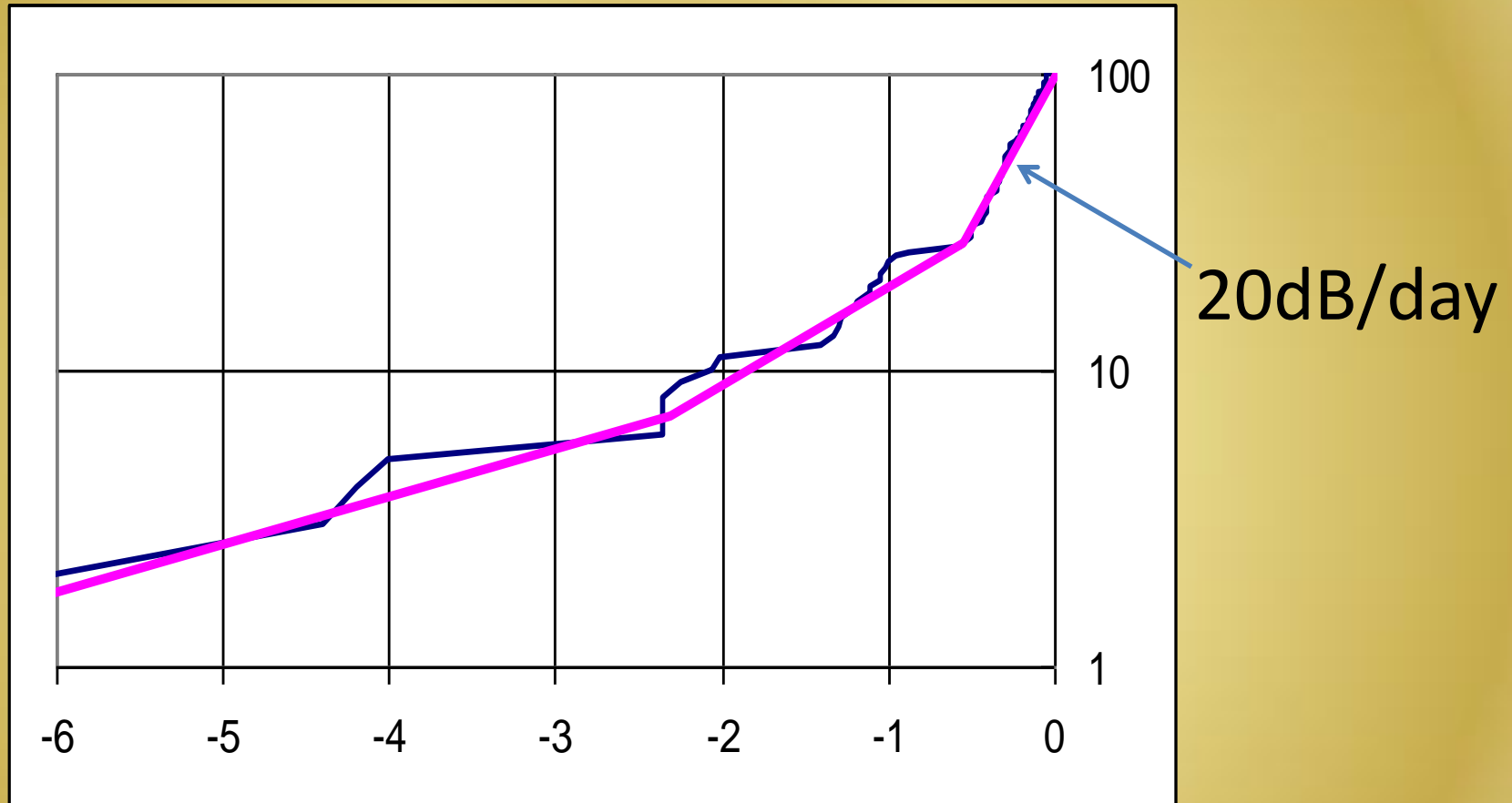
Fix grade 4



Grade
scale before discretization.
Positive grades only.

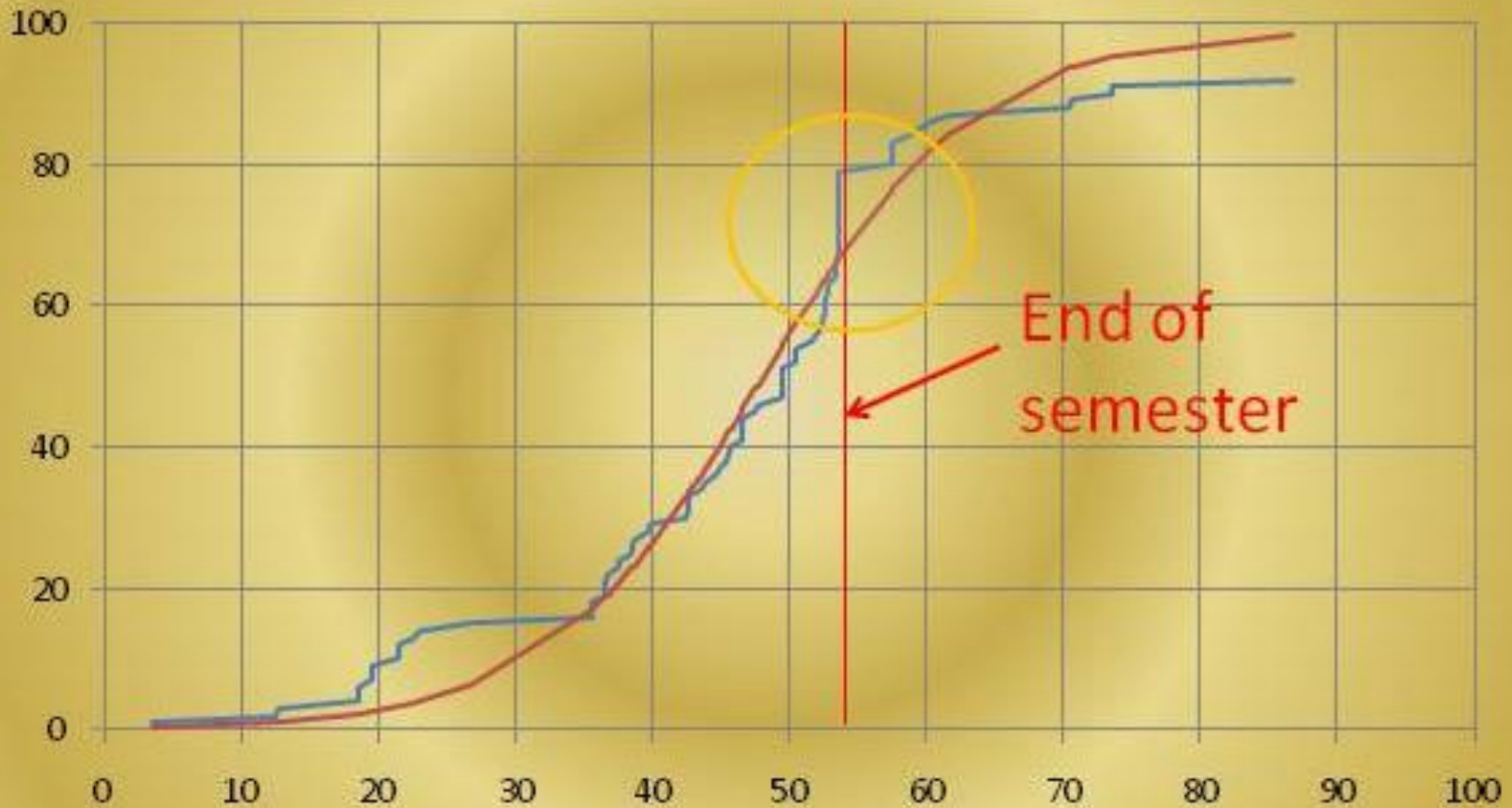
Figures as conclusions

Deadline rush (K-curve)



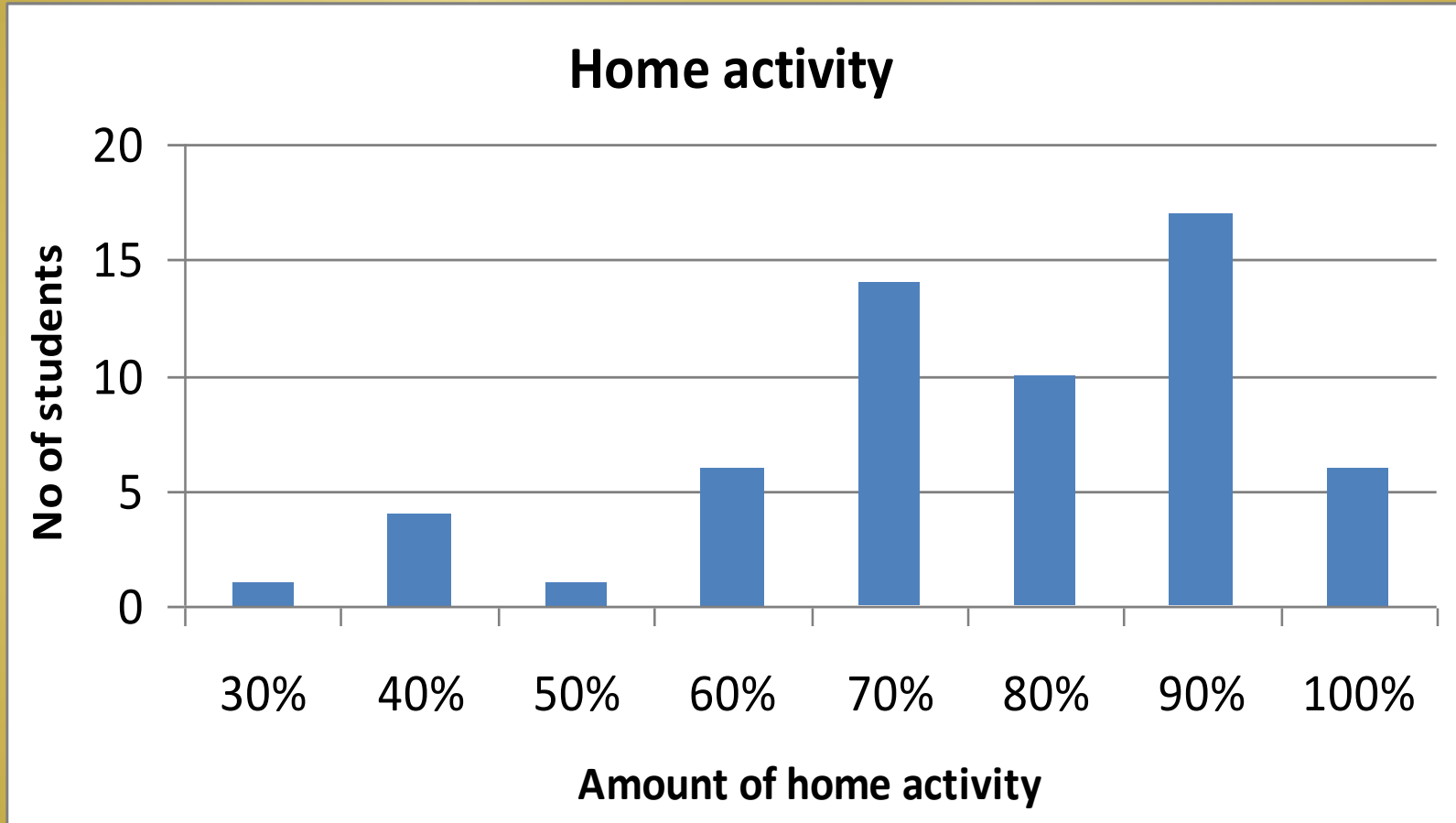
Most of home works presented in last 12 hours
contribute nothing to learning

2008 Fall

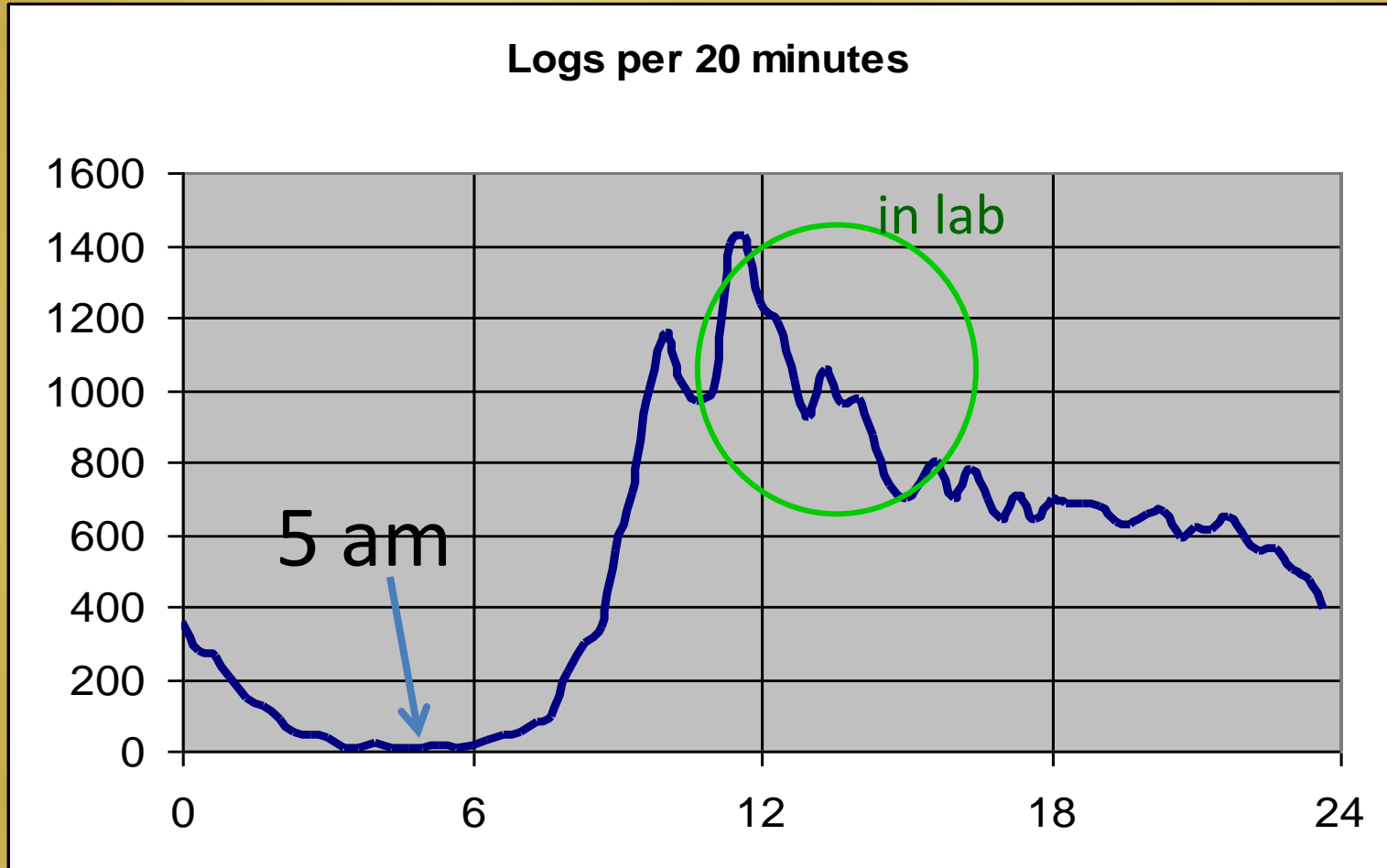


Completed actions
almost the same during last 10 years

At home (2009 fall)



Activities vs daytime



The same over years and observed also in other studies

Conclusions as text

The most efficient motivator is showing to student his/her state and progress (color is good)

Learning environment has to be a best friend of learner (reacting instantly)

Home learning involves more (virtual) learners (mam, brother, girlfriend,..)

Thank you!