



Facilitating Continuous Learning “Leistungselemente” in Practice

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The ETH Success Philosophy

- During Terms:
 - Dense and solid foundations are conveyed
 - A good student can at best follow the class, but there is not enough time to internalize during term
- During Breaks:
 - Students are expected to internalize *re-learn* practice the material one more time at own
 - Weaker students *have* chance to pick up (possible if not too far behind.)

Not ready for an exam during term!

→ A total of 20 weeks on the topic.

This is a different quality over a 14 weeks program with exams afterwards

The Challenge

High-Drop out rates in Bachelor:

30 – 40% in first year.

The Challenge

50% overall drop-out across Bachelor

Is too high a loss for a system with an Abitur quote of 15% -
& a probability for going to ETH of less than 30%

Why?

- Students have learnt to cope with a Gymnasium system of exams that forces them to focus on particular subjects on a weekly base.
Now they enter a system with an exam which seems very far away and seems to give them a freedom to just enjoy the lectures.
- Students think that they have weeks of vacations to get prepared for the exam.

Solution

- Students need to stay with lecture, follow the program, attend and complete the tutorials

Idea 1

- Midterms with positive grade reward
→ Students indeed work towards the exam

But

- Other lectures are jeopardized
(as students miss out on other lectures)
- Important content of other lectures is lost

Idea 2

The new “Weisung” on **«Anwendung von Leistungselementen in der Lehre»** gives opportunities

Es werden folgende drei Typen von Leistungselementen unterschieden:

- a. Obligatorische Leistungselemente
- b. Zwischenprüfungen
- c. Lernelemente

Lernelemente – Art.6

- 1 Lernelemente steuern das Lernverhalten der Studierenden im Semester, indem sie mehrfach niederschwellig Feedback zum Lernerfolg geben, **z.B. mittels abgegebener und korrigierter Schnellübungen, Quizzes, vorgetragener Lösungen von Übungen etc.** Es sollen **mehrere Lernelemente pro Semester** angeboten werden; die typische Anzahl beträgt fünf bis zehn.
- 3 Erfolgreich gelöste und abgegebene Lernelemente können insgesamt zu einer **Erhöhung der Gesamtnote** der Lerneinheit im Umfang **von maximal 0.25** Notenpunkten führen. Der maximale Bonus wird durch erfolgreiche Teilnahme an einem definierten Teil der angebotenen Lernelemente erreicht. Die Maximalnote 6 für die Lerneinheit kann auch erreicht werden, wenn nur die Schlussprüfung absolviert wird.

Lernelemente – an Effective Tool

Participation on Tutorials will be rewarded with a Bonus of up to 0.25 grades.

Implementation: The written solutions will be collected for 3 times – exactly 15 minutes after the start of the tutorial.

→ This keeps the effort to the own staff reasonably low.

The bonus will be granted, if more than 50% of the tasks has been dealt with on the tutorial.

→ This encourages the students to work on the tutorial for a whole term.

Challenges of Granting a Bonus on Tutorials

- The students will stay with lecture and the final exam will be much better. (It makes about 0.5 absolute grades of difference)
- Students are not only much better, but now also get a bonus of 0.25

→ Prof. have to be fair.

The average grade should be at least higher according to the grade

Fear of Students

- Now that students work harder and deliver better results, the **Profs are unfair** and just demand more for the same grades.
- The 0.25 bonus will be granted, yet to keep average grade low the Profs. will move to a harsher grading and the bonus is no longer a positive bonus but rather a punishment for those who do not participate.

How to Compensate without Grade Inflation

- Grant 0.25 or points only if average is below 4.0

Summary

- Lernelemente are an effective tool to encourage active participation on lecture
- Little effort, large effect if tutorials are only randomly collected.
- ➔ Overall effect on learning is large

Yet, keep compensation reasonable – otherwise it is not sustainable either.