



Learning Management System based on **sync & share storage** at ETH Zürich

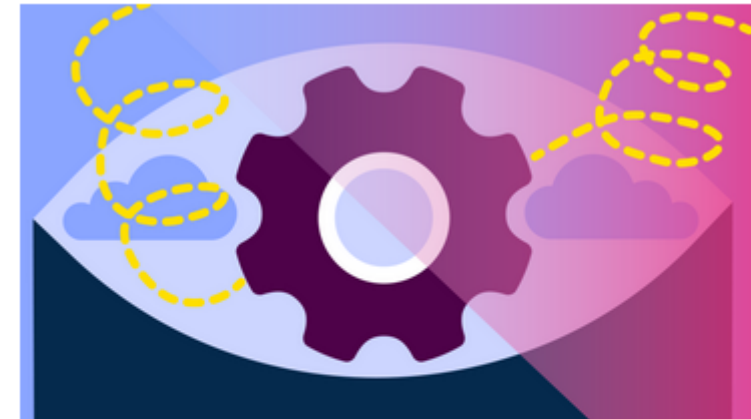
ETH zürich



The administrative department Educational Development and Technology (LET) promotes excellence and advancements in ETH teaching. LET offers information and services and showcases teaching practice at ETH Zurich.



Excellent teaching at ETH Zurich.



Curriculum development means the new development or further development of courses.

Four Cs for the 21st Century

Communication



Sharing ideas, thoughts, solutions and questions

Collaboration



Working together to reach a common goal

Creativity and Innovation



Using new techniques and approaches to create new ideas

Critical Thinking and Problem Solving



Ask significant questions that lead to better solutions

The Stack – polybox – Collabora Online - Moodle

Tool used:

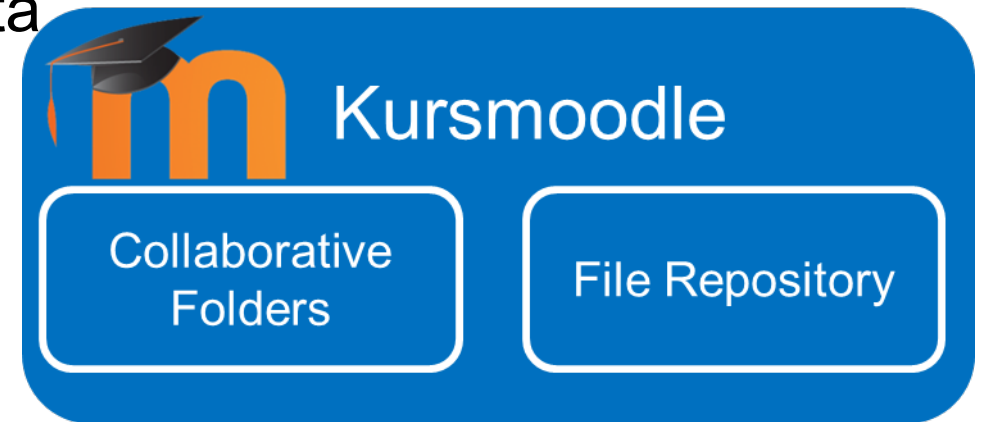
Polybox + Collabora

Purpose:

Providing Information to students

Gathering and organizing of experimental Data

Sharing of results



Example - Sustainable Agroecosystems

Tool used:

Polybox + Collabora

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Sharing of results

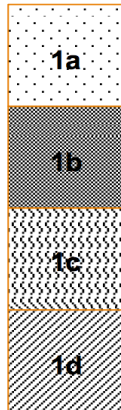
Example - Sustainable Agroecosystems – Instructions

Experimental set-up at LFW planting beds (started in Nov. 2017)

Planting bed #: 1
Main factor: Biochar

Randomized block design, four treatments:

-  a Control
-  b Compost
-  c Nitrified urine
-  d Mulch



24 treatment plots = 1.5 x 1.5 m (2.25 m²)

Soil improvement of LFW planting beds Overview of proposed strategies

Student team
Compost

Objectives
Soil amendment \



Soil improvement of LFW planting beds Overview of proposed strategies

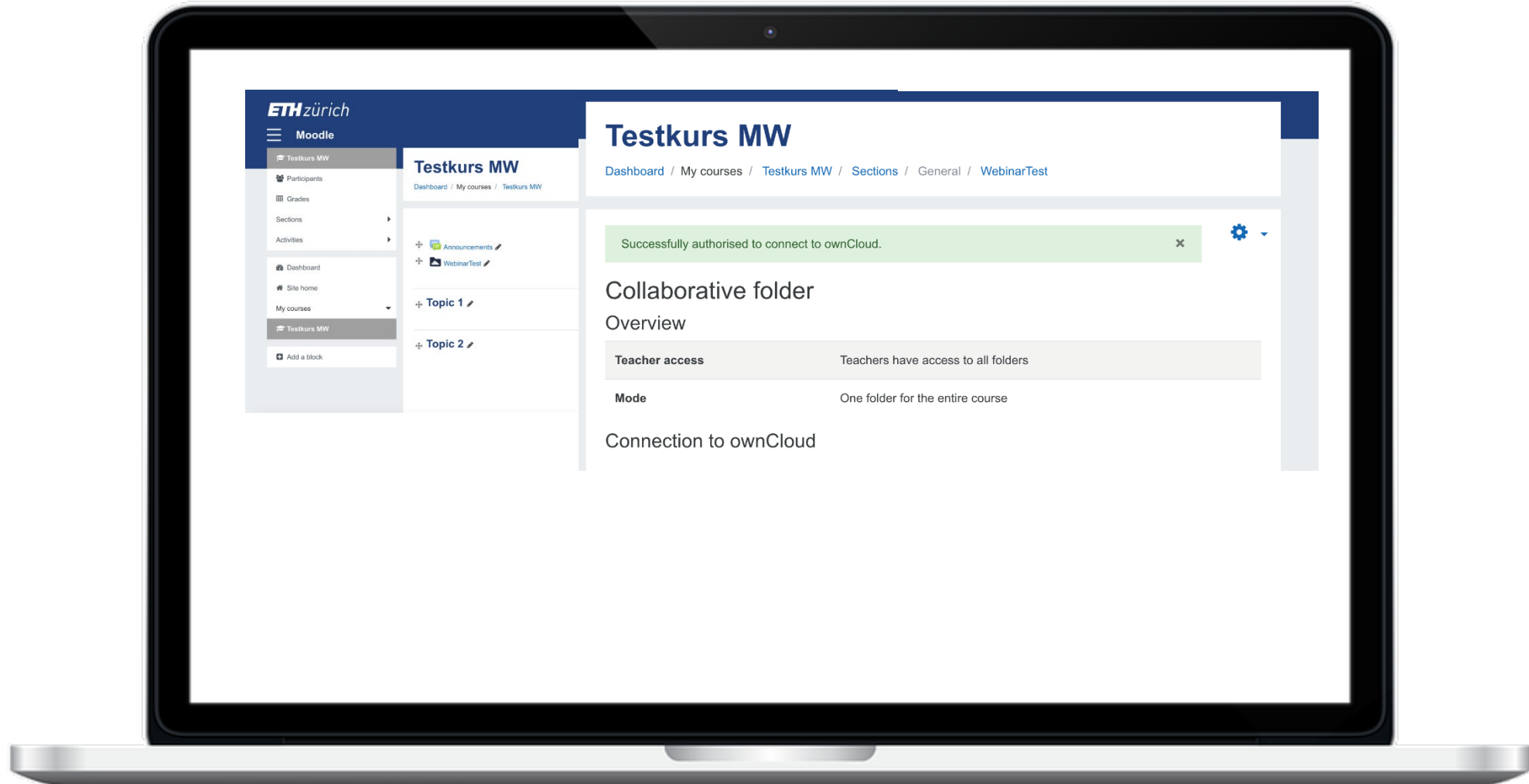
Student team
Biochar I

Objectives
Improve water holding capacity of soil by adding (1) biochar and (2) mulch.

- Hypotheses**
- Biochar amendment (900 g/m²) applied to topsoil (0-10/15 cm) will improve water holding capacity (Karhu et al., 2011).
 - Mulch increases SOC and therefore increases water holding capacity (Powlson et al., 2012).




Collaborative Folders – Moodle PlugIn



















Sustainable Agroecosystems – Overview

← → ↻ https://polybox.ethz.ch/index.php/apps/files/?dir=/Shared/Experiment_LFW_planting_beds&fileid=1091372744 ☆  |  

Files polybox  Melanie Walter (melanie.walter@let.ethz.ch) ▾

Home > Shared > Experiment_LFW_planting_beds > +

<input type="checkbox"/>	Name		Size ▲	Modified
	Experiement_corn.ods	 Anett Hofmann (anett.hofmann@...)	32 KB	23 days ago
	agroecosystem.ods	 Anett Hofmann (anett.hofmann@...)	34 KB	20 days ago
	Data_LFW_planting_beds.ods	 Anett Hofmann (anett.hofmann@...)	34 KB	6 days ago
	CO2 measurements	 Anett Hofmann (anett.hofmann@...)	522 KB	2 days ago
	SAESII_Sept20_exercise_20180920.pdf	 Anett Hofmann (anett.hofmann@...)	871 KB	2 months ago
	Info_experimental_set_up_20180920.pdf	 Anett Hofmann (anett.hofmann@...)	1.5 MB	2 months ago
	Temp Logger data	 Anett Hofmann (anett.hofmann@...)	1.7 MB	19 days ago
	Lab nutrient analysis	 Anett Hofmann (anett.hofmann@...)	7.6 MB	20 days ago
3 folders and 5 files			12.3 MB	

Deleted files

Settings

Sustainable Agroecosystems – Data

Office polybox Melanie Walter (melanie.walter@let.ethz.ch)

Collabora Online File Edit View Insert Format Sheet Data Tools Help Data_LFW_planting_beds.oc

L25 =K25-J25

	B	C	D	E	F	G	H	I	J	K	L	
2	Height											
3												
4												
5		Planting bed	Main factor	Treatment		„Adopt a plot“ - Fall term 2018	Soil density cylinder (0 to 5 cm)					
6		Identifier	Short descrip	Identifier	Short descrip	Student name	Fresh weight (with cylinder and plastic caps)				Dry weight (with cylinder and plastic caps)	Dry weight
7							(g)				(g)	(g)
8							Sept. 20, 2018 (students)				Oct. 3, 2018 (MM)	Oct.10, 2018
9	1	Biochar	a	Control		Sophie Miescher	231.3				222.9	22.02
10	1	Biochar	b	Compost		Samuel Wildhaber	230.3				218.9	23.36
11	1	Biochar	c	Nitrified urine		Julian Klinkmann	245.0				232.6	22.05
12	1	Biochar	d	Mulch		Silja Müller	234.9				217.2	12.89
13	2	No biochar	a	Control		Enea und Paula	238.8				227.8	18.57
14	2	No biochar	d	Mulch		Ramona Michel	256.0				242.7	29.12
15	2	No biochar	b	Compost		Sibilla Guillén	257.7				243.7	30.08
16	2	No biochar	c	Nitrified urine		Orlando Scholz	228.0				216.0	19.87
17	3	Biochar	a	Control		Luzia Zuidema	226.1				217.8	18.11
18	3	Biochar	c	Nitrified urine		David Vetterli	236.0				225.7	17.71
19	3	Biochar	b	Compost		Noëmi	219.0				202.6	18.07
20	3	Biochar	d	Mulch		Sarah-Joe Burn	261.1				242.9	31.57
21	4	No biochar	d	Mulch		Zita Sartori	238.8				227.0	18.63
22	4	No biochar	b	Compost		Carlo Steiner / Simon Amrein	233.1				214.6	22.6
23	4	No biochar	c	Nitrified urine		Laura Stoll	265.8				251.5	33.69
24	4	No biochar	a	Control		Vivienne Oggier	246.0				231.3	18.46
25	5	Biochar	b	Compost		Manuel Mathis	211.5				194.8	13.66
26	5	Biochar	a	Control		Lenie Iten	232.3				219.8	26.6
27	5	Biochar	d	Mulch		Jasmin Wiedmer	249.7				232.9	23.59
28	5	Biochar	c	Nitrified urine		Nina Bratschi	237.0				219.5	20.9
29	6	No biochar	c	Nitrified urine		Michael Feller / Selina Ilchmann	257.3				244.4	28.96
30	6	No biochar	b	Compost		Laurence Jeanros	244.8				227.2	20.91

1. Experimental set-up 2. Aboveground biomass 3. Soil samples 4. Results CN analysis 5. Results SOC estimation (field test) 6. Results soil bulk density 7. Soil gravimetric water content 8. Nutrient analysis 2017

Search: Sheet 3 of 9 German (Germany) Standard selection Average: 194.8; Sum: 194.8 Document saved 1 user 100%

Online collaborative learning

Collaboration is good for teaching

Learning is a social process during which participants together develop a consensus on a particular theme or work on a product. Working collaboratively generates superior thinking processes and information is stored longer than it is when working alone. Social impulses such as dialogue, discussion, contradictory perspectives or differences of opinion are usually good for the learning process.

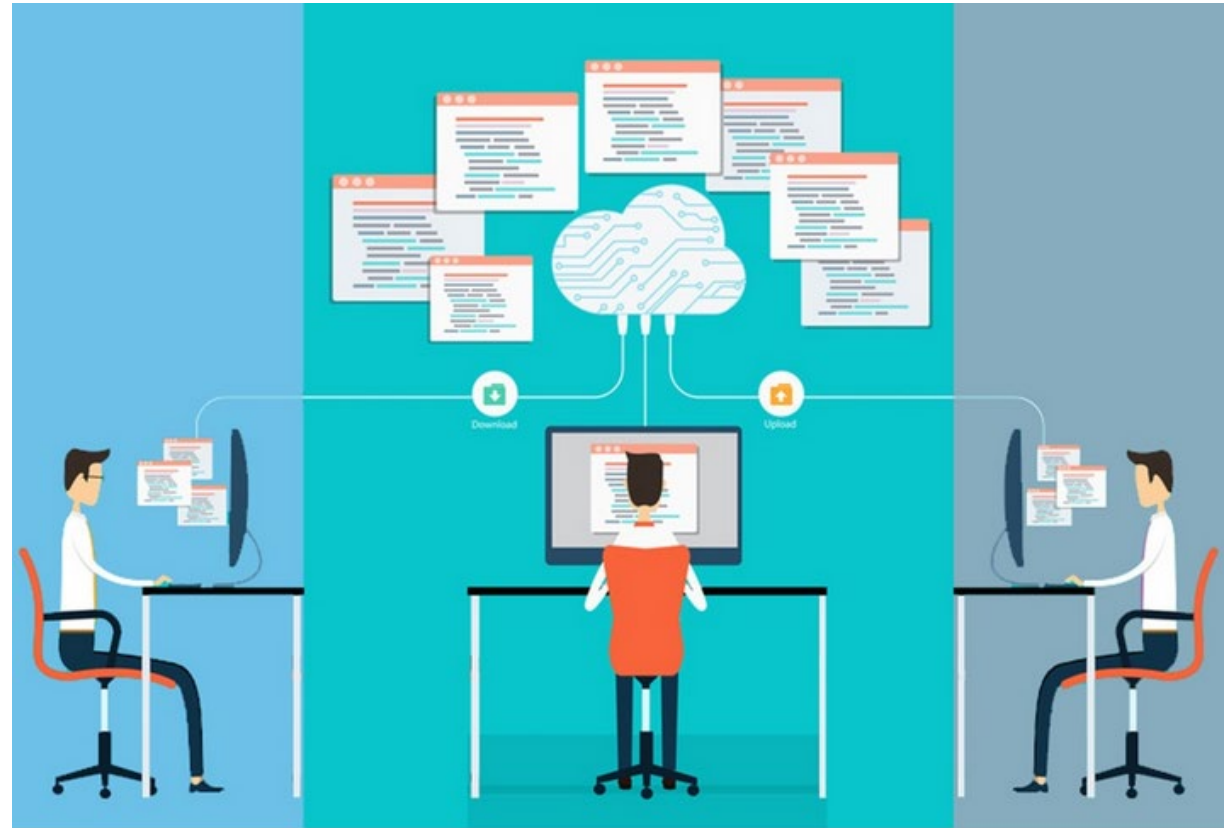


Bild: Getty Images

Exams – Learning Management System (LMS)

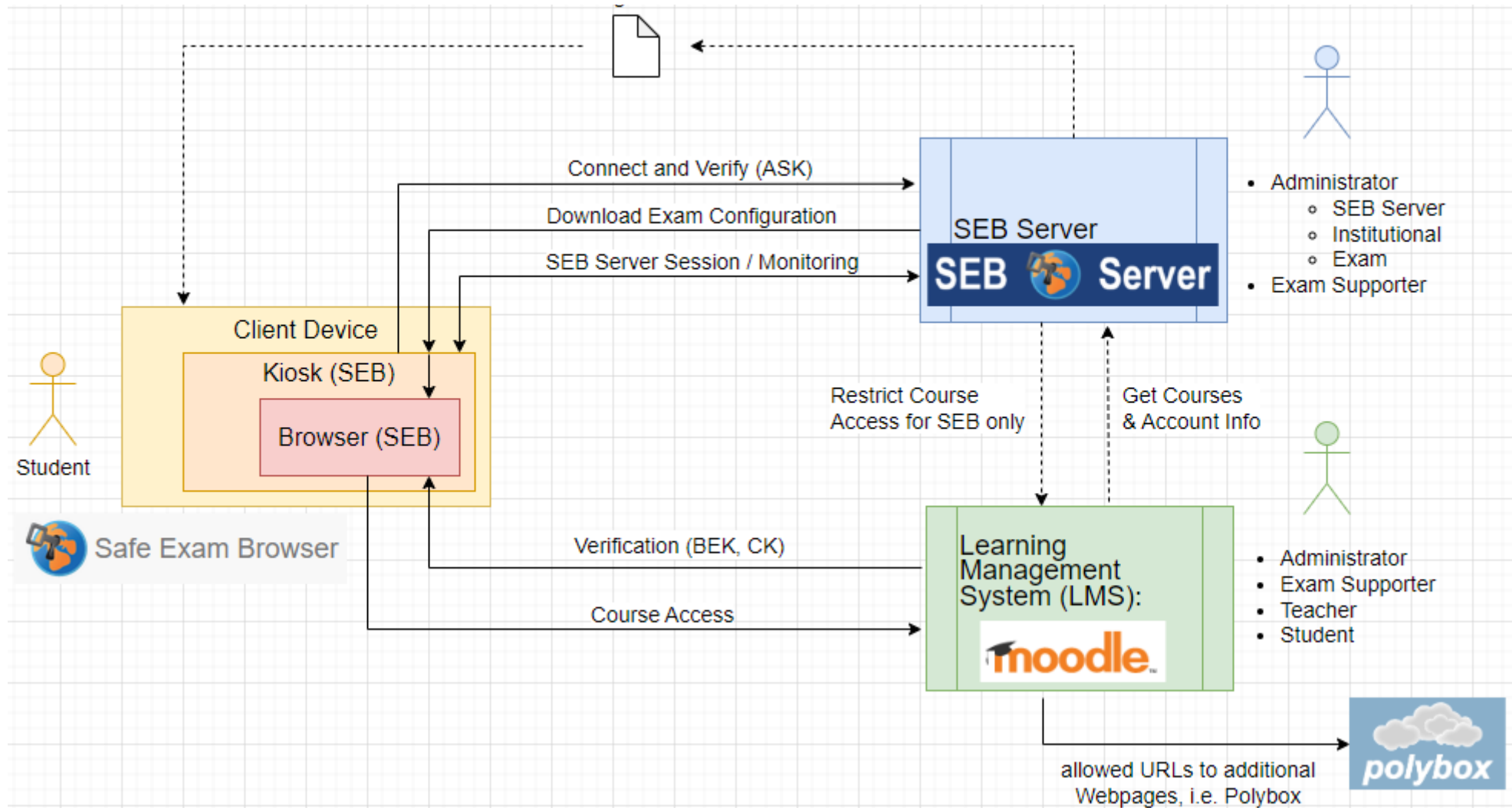
At ETH different exam environments are in use, managed by LET and IT services and secured with SafeExamBrowser (SEB). From a technical perspective we differ between simpler setups for examinations that only use a LMS like Moodle and sometimes additional resources such as PDF-files and more complex examinations that use additional software, for example MATLAB, R-Studio, etc. and run in a virtual desktop environment (VDI).

So far, if examiners wished to provide a larger number of course materials because their exam was planned as an open-book exam, VDI environment had to be used. A solution in Moodle itself meant: every single PDF has to be uploaded one by one by the examiner – it's a time consuming process, good structure of the files is difficult to achieve, therefore not suitable for > 5 files.

Since VDI-resources should be preserved for more complex examinations with SEB, Moodle and additional software, and not to only provide some course materials, we were looking for a solution, that is easy to setup for us and the examiner, timesaving and with no need for the VDI.

Our solution: Use of a storage system like polybox, where examiners enable students to upload their own materials (examiner just needs to setup a folder and provide the URL) and later implement this URL in their exam, so that students can only access these allowed resources. Another advantage of this approach is to have bigger data on a system, that is exactly being built and maintained for this purpose instead of using our LMS as a document storage.

Exams – Save Exam



Exam Preparation and Exam

Exam Preparation

Student install actual Safe Exam Browser version on device if not managed

SEB Server Institutional: setup LMS access and create Connection Configuration

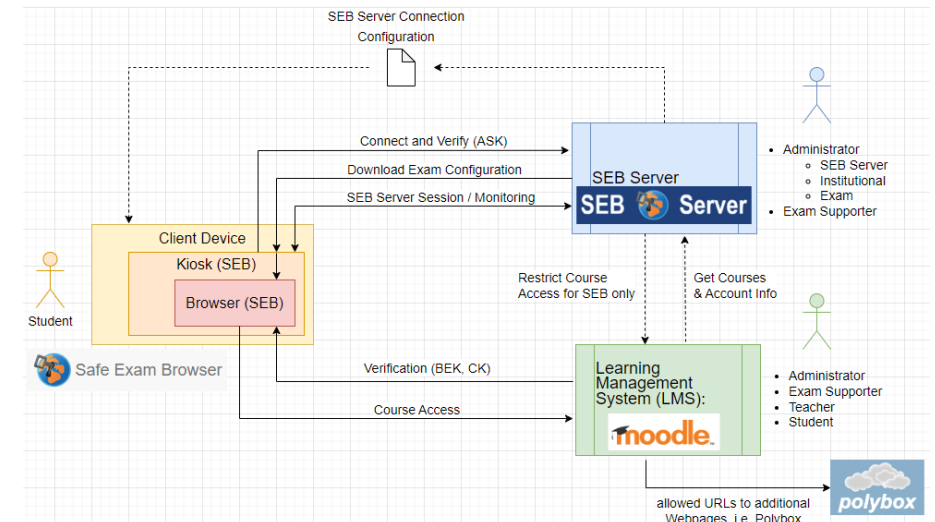
LMS Teacher/Supporter: setup courses and quizzes on LMS

SEB Server Exam Admin: import course/quiz from LMS and setup exam on SEB Server

On Exam

SEB Client loads SEB Server connection configuration and connects to SEB Server. SEB Server verifies SEB Client (with App Signature Key)
SEB Clients automatically download exam configuration from SEB Server and connects to the LMS with the configured settings.

LMS verifies SEB Client connection access with Browser Exam Key or Config Key given by SEB Server for specific course.



Summary

Collaboration is good for teaching

Learning is a social process.

Working collaboratively generates superior thinking processes and information is stored longer than it is when working alone.

Exams

Using a sync&share storage system like polybox examiners enable students to upload their own materials so that students can only access these and other allowed resources – open book exam

Feedbacks

“We successfully use collaborative folders in one of our large classes for the sharing of video files between members of small working group.”

“vielen Dank für die prompte und hilfreiche Antwort! Mit dem Verzeichnis hat es super geklappt.“

„ja besten Dank, das ist genau das, was ich gesucht hatte!“

„Our scientific writing class profits greatly from this easy way to share documents”

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