



Progress towards exams digitalisation - the SDU experience to date

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Challenges and solutions

- Issues to be dealt with before, during and after exam
- Systems involved
- Bespoke versus Standard-solutions



Immediate advantages of digital exams!

Digital assignments can be checked with anti-plagiarism tools

Tests made digital – can be graded automatically. And can later be used in teaching

Online information search during exam is now possible! That resembles real life more

Students are used to word-processors with spell-check, easy editing etc. Their handwriting is barely readable nowadays



Immediate challenges

Cheating by unauthorized communication with other students or outside persons during exam

Drawing and formulas – in some fields it is common to write and draw by hand



Cheating!

The problem first raised when we started implementing digital exams

An arms race – we realize that a (small) fraction of students try to cheat, and they become more clever every time we implement a new tool to prevent cheating

Basically most students study at SDU to learn, and they don't want to cheat – but they are worried that their grades will devalue when others cheat

So, our anti-cheating systems are generally received well by the students



Challenges and solutions

There is cheating, and then there is plagiarism.....

Not quite the same thing

Several assignments can become quite similar when a group of students copy-paste from the notes that they produced together before exam

Different tools used in combination help us to prevent cheating:

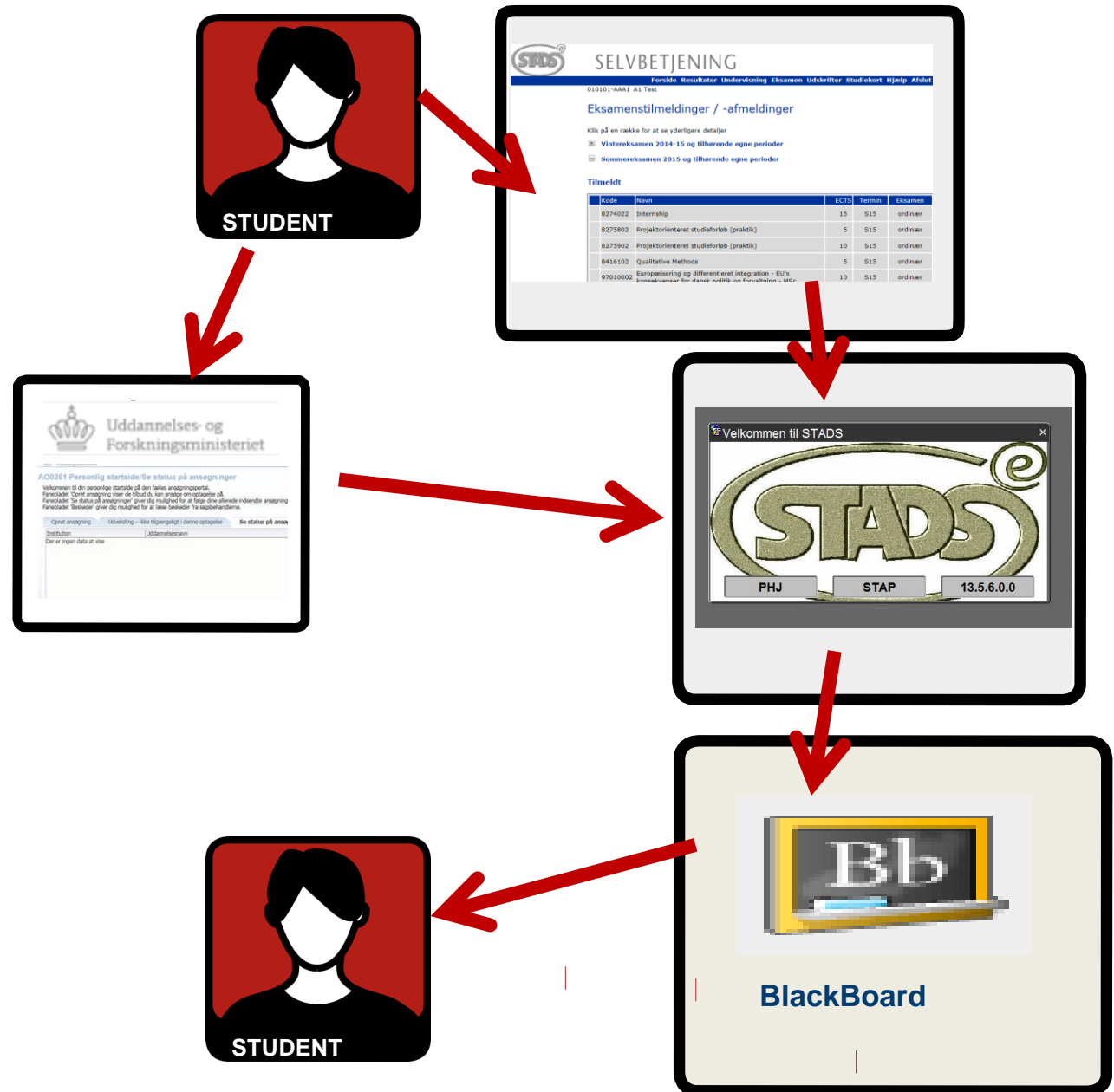
Anti-plagiarism tools

Exam Monitor

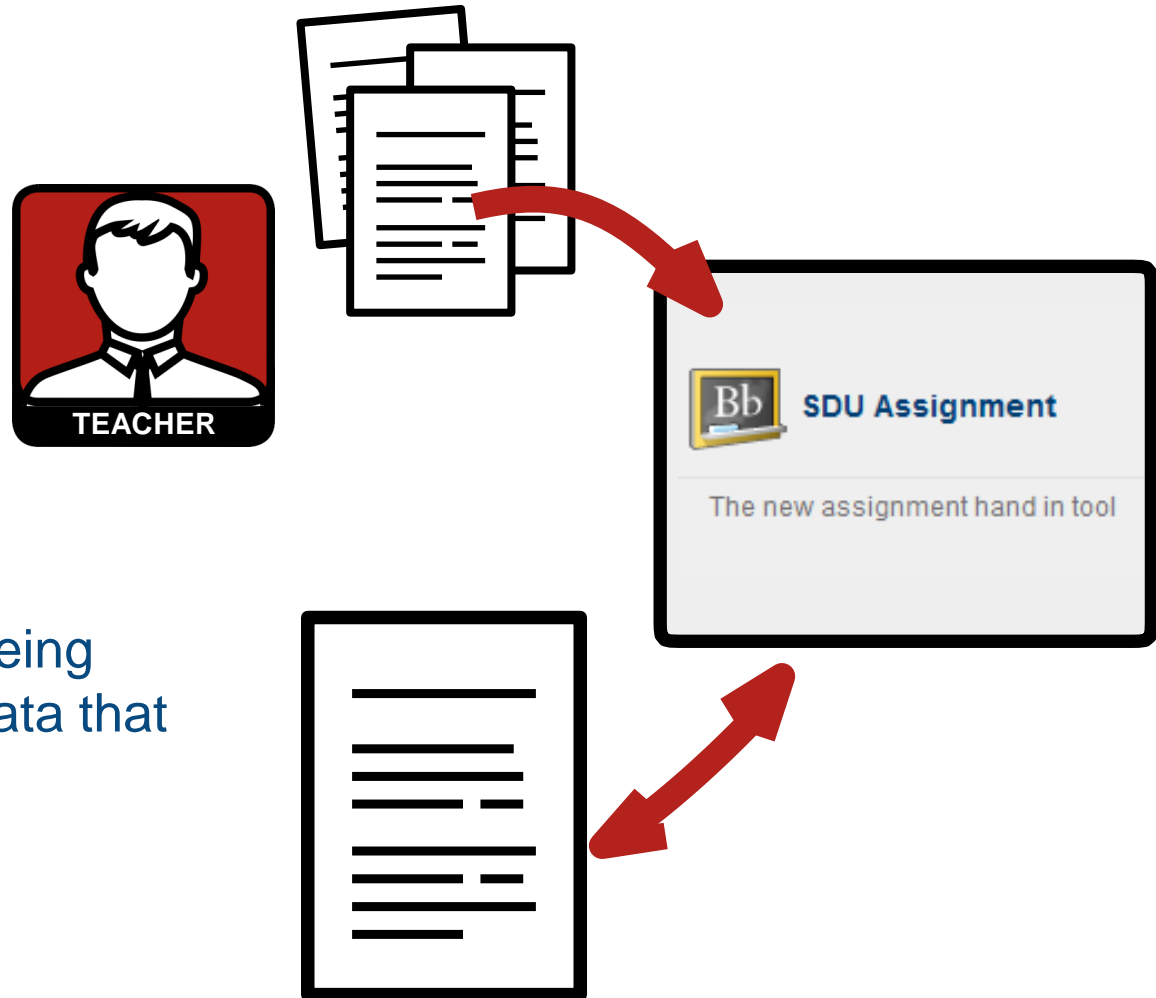
Lock Down browsers

The preventive effect – fewer students try to cheat when they know that we are watching them

Before Exam



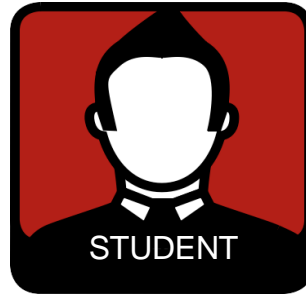
Before exam



The Assignment is being enriched with metadata that control the hand out

Before exam

- SDU Scribble
- SDU Assignment
- Exam Monitor



Workshops

- Students
- Invigilators
- Supporters

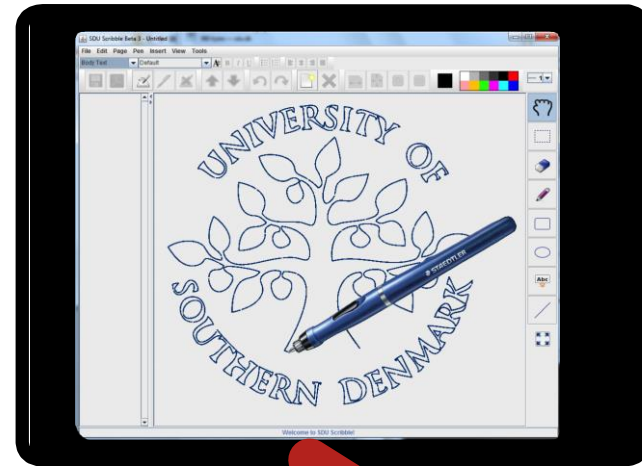
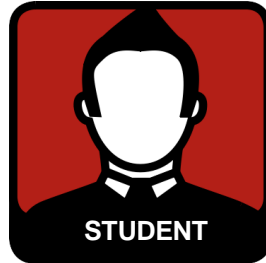
Testing devices



Use tools in education

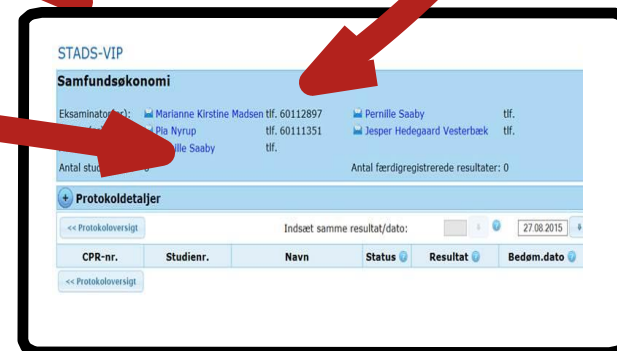
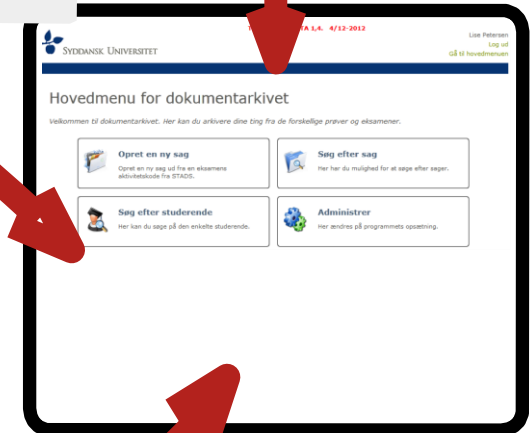
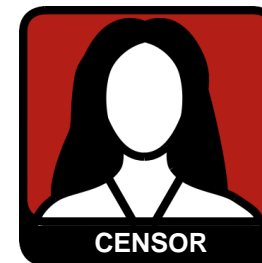
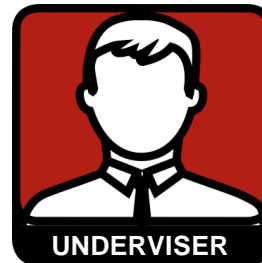
During exam

- Prepare software and devices
- Turn on Eksam Monitor
- Download assignment
- Do the test
- Upload assignment



After exam

- Plagiarism control
- Distribution
- Feedback
- Grade
- Publish grades
- Archive assignment





Bespoke versus Standardsystems

- Using standardsystems
- Developing together with others
- Doing it on your own
- Just in time



Exam Monitor



Click the button above to start the program

How

Exam monitor does the following on random intervals when running



Screenshots

Exam Monitor registers with screenshots what is happening on the client.



Clipboard

Exam Monitor check the content of the computer clipboard (copy/paste-function).



Interface

Registers clients network interface configuration i.e. ip configuration and mac addresses.



Connection

Exam Monitor verifies that it has connection to the central server.



Processes

Exam Monitor registers running processes on the clients.



Virtualization

The client detect whether it runs in a virtualized environment.



Secure

Communication between the client and server is encrypted. Access to registered information is only via secure protocols.



Cross platform

The client runs on most common desktop platform
- Windows, Mac and Linux.



Anti-plagiarism tools

- Safe Assign is integrated in SDUs LMS (Blackboard). Other good systems exist on the market: Turnitin/Ephorus, Urkund
- Can't give us unequivocal answers – it only tells us if a text matches other texts – and only searches where it has access
 - But it helps us to choose which assignments to look closer into
 - - And the preventive effect is important !
- Used in combination with Exam Monitor Safe Assign becomes a useful tool