Digital assessment

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SDU facts

Etablished 1966. Merger of 4 partners in 1998.
Another 6 mergers since.

5 faculties: Engineering, Science, Health Sciences, Humanities, Business and Social Sciences

6 campuses – Odense is the main campus

Students, no (oct. 2012):	26,034
(of which from other countries:	4,104)
Programs, no (bachelor + master):	222
(of which in English:	81)

Our challenge

Vice-chancellor ” We will have no paperbased exam, only digital exams”, May 2010

Challenge: Conduct 75.000 exam pr. year in a feasible way and with generally accepted criteria for quality of good assessments.

Why digital assessments?

The quality of the assessment is traditionally measured according to the following criteria:

***Validity* – the assessment measures the content (knowledge, skills, competences) it is supposed to measure**

***Reliability* – the assessment is reliable – i.e. there is a consistent distinction between good and poor students**

***Feasibility* – the resources, which are required to conduct the examination, are present**

***Acceptability* – the assessment is widely accepted as being 'good' by students and faculty**

Status

According to these criteria the implementation of digital assessment at SDU has been partially successful:

- A conscious approach to assessment and ongoing discussions has brought us a long way in increasing validity and reliability.
- The acceptability of digital assessment is high among students.
- The resources have been present, and the goal of feasibility of digital assessment has been partly achieved, due to automation of workflow and due to students bringing their own computer (BYOD).

Status

By the exam term of January 2014 the formal goal of the implementation project – all written exams should be digital – was reached by all 5 faculties and 5 campuses. Paper is no longer used at exams, and the students handed in a total of 84.000 digital assignments in 2013.

5 workinggroups have concluded their work:

1. Legal advice group, implementation of ministerial order, SDUs obligations to students etc.
2. Technical learning management system group, handling and administrating the possibilities in the LMS.
3. IT-technical group, developing and implementing technical requirements.
4. Invigilator group, education and coordination of invigilators.
5. Workgroup for digital feedback and anti plagiarism.

Total hand-in 2013

Hand-in until now 2014

Develop assessments

Written:
Multiple Choice Questions (MCQ) and similar tests
Written invigilated exam without aids (short or long) Written invigilated exam with aids (short or long) Portfolio
Written paper
Oral:
Oral exam/Viva without preparation *
Oral exam/Viva with preparation, without aids*
Oral exam/Viva with preparation, with aids*
Student presentations
* students draw an examination question at the beginning of the exam
Practical:
Internship assignment
Objective structured clinical exam
Practical test
Combined exam:
Oral presentation based on synopsis
Written paper with oral defence
Portfolio and oral exam
Active participation

Validity and reliability

- With open-internet exams, anti plagiarism software is a very important tool in hindering cheating and plagiarism.
- It is easier to cheat when the content of an assessment is presented in the same way to all students, but in a digital test it is possible to randomly select test questions from a databank, or randomize the order of questions, or the order of answer possibilities.
- Special courses have been designed for our corps of invigilators to make them able to spot when students cheat. Furthermore, hands-on inspections of student computer during exam have been done at random, by IT-staff (app. 1000 spot-checks).
- In 2013 175 students was caught cheating/plagiarizing,

Acceptability

- *Acceptability* means that students as well as faculty and external stakeholders have confidence in the assessment, and that it is generally accepted as a good assessment method.
- In the original Business Case an important argument was that the students wanted digital assessment.
- In the evaluation of the Study and Educational Environment 2013, all full time and part time students have been asked to respond to a questionnaire. 22% of all students responded.
- The students' overall evaluation of the virtual study and educational environment is above average, and they have predominantly given a positive response regarding IT-help at the digital assessment.

Feasability

Feasibility means that the resources, which are required to conduct the assessment, are present – e.g. staff, examination rooms, IT equipment and time.

- SDUs LMS (Blackboard with supplementary modules) is under continuous development, to meet the demands from the different methods of digital assessment.

- In order to do a cost-benefit analysis, we first need to estimate the direct cost:
  Six full-time IT-supporters: 6 * 50.000: 300.000 Euro.
  Student employees (TA): 66.000 Euro.
  Technical solutions and IT-staff for education software: 730.000 Euro.
  Invigilators/supervisors: 500.000 Euro.

There are no other direct costs because the exams are conducted in ordinary classroom and the students bring their own device. The estimated cost for the 75.000 assignments is therefore app. 1,596 mill. Euro per year, or 21 Euro per assignment.

Feasbility

2 Digital$_3$assessments project: The University of Aarhus (AU) and SDU

- AU: In the pre-project 1671 users were involved with 327 censors and they concluded that the cost for 100.000 assignments would be 0,82 mill. Euro per year. The conclusion was that the main benefit was gained from automation of the workload of administrative faculty members. The Digital Assessment Project at Aarhus University incorporates workflow, and is therefore comparable to the one at SDU.
- At SDU we have not estimated the time spent on administration before and after digital assessment, but because the 2 universities are similar in organization, technical setup and competence, we find the estimate to be realistic. Although SDU conduct only 75.000 assignments, and therefore only ¼ of the numbers estimated by Aarhus University.
- In comparison, Aarhus University cost per assignment was estimated to 8,2 Euro, and SDU cost is estimated to 21 Euro.

Exam Monitor

SDU Scribble & SDU Assignment

- BEFORE EXAM

- DURING EXAM

- AFTER EXAM

BEFORE EXAM:

THE TEACHER DISTRIBUTE THE ASSIGNMENT DIGITAL.

THE ASSIGNMENT IS BEEN ENRICH WITH METADATA THAT CONTROL THE HAND OUT.

BEFORE EXAM:

Preparation and training of equipment and system

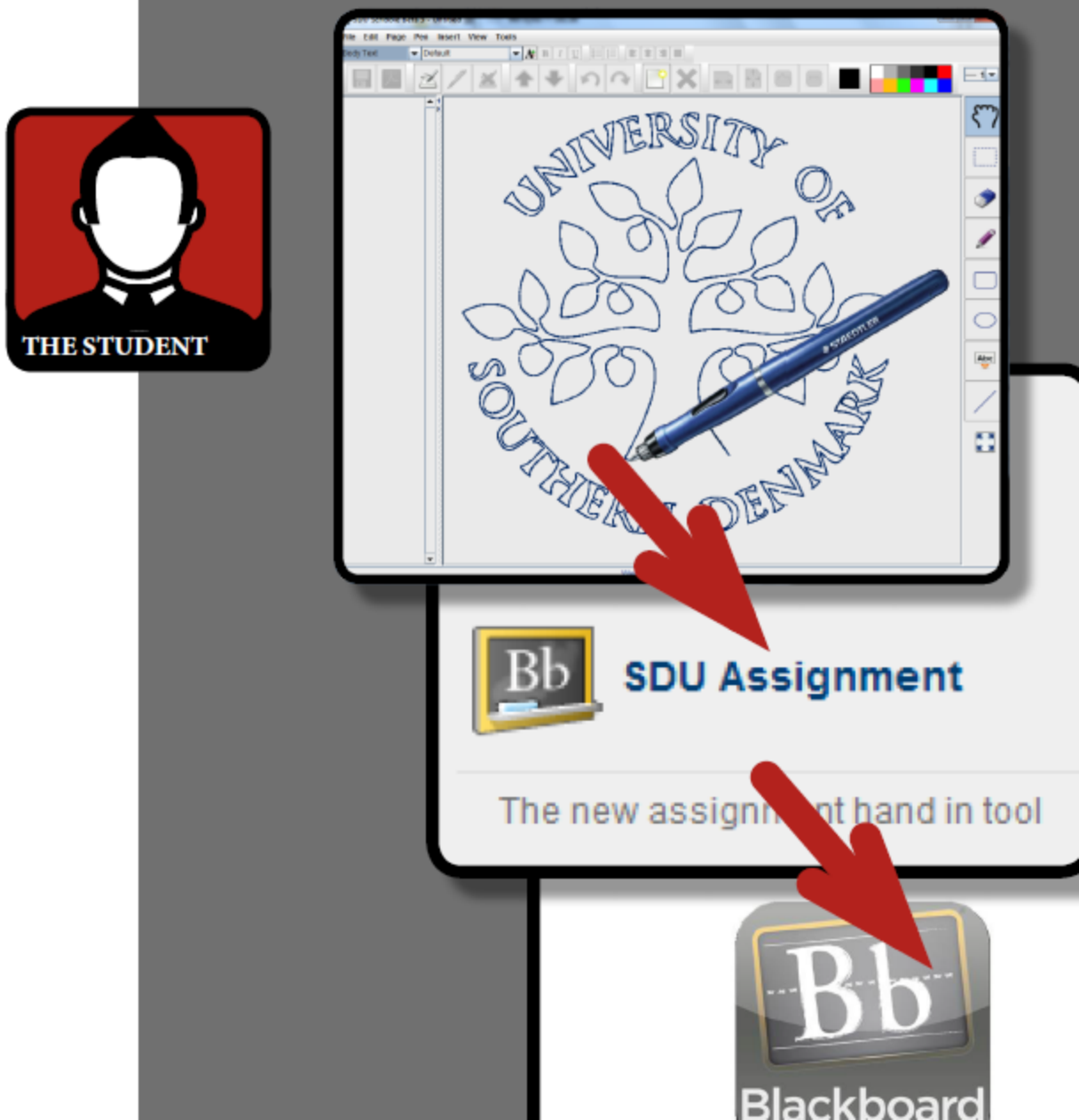
Introduction arr.

Testing of devices

Use in education

During exam:

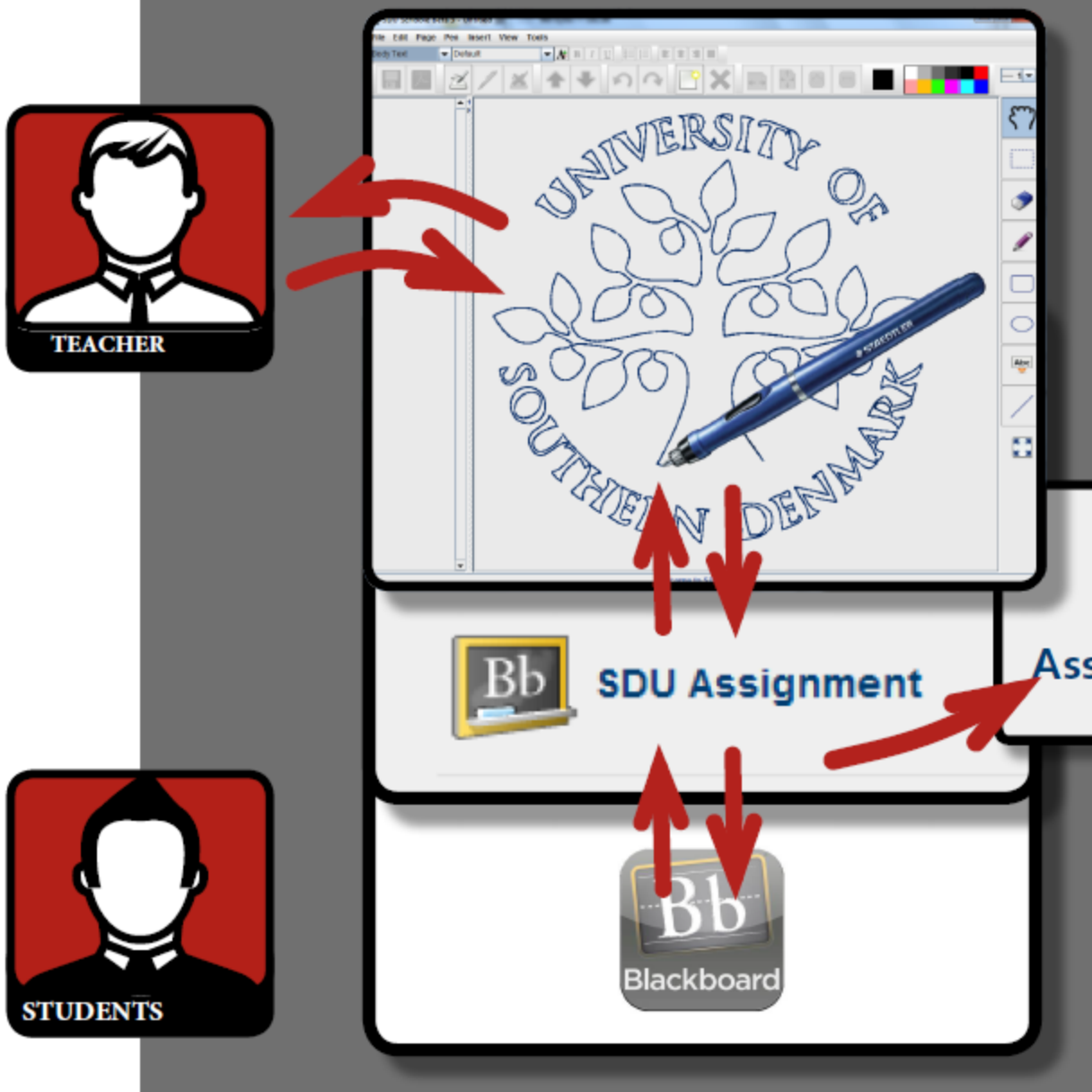
Upload assignemt



After exam:

Feedback/grade - Teacher download assignments.

The student gets feedback/grade online or e-mailed



After exam:

Distributing and archiving - SEKRETARY archivverer in documentarchive

Teacher and censor download and upload commeted assignment from Scribble

Conclusion

• Digital assessment helps us to test what we want to test by offering new opportunities and tools in search of increased validity and reliability. First and foremost, the students work with their computer when they study, and now they can do so at assessment as well. It is therefore potentially possible to obtain a larger degree of alignment between teaching and assessment. However, difficulties with digitizing certain handwritten things, the open Internet problem a.o. have not yet been solved. The potential of digital assessment can still be developed and exploited better, and will be in the coming years.
• The acceptability of digital assessment is high among students, but possibly lower among faculty members. It can be assumed that faculty member acceptability will increase as digital assessment is developed more.
• Improved possibilities for testing the reliability of a digital test exam, and thereby improved possibilities for developing exams towards better reliability
• The ressources have been present, and the goal of feasibility of digital assessment has been partly achieved, due to automation of workflow and due to students bringing their own computer (BYOD).

Q&A

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