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Challenges of e-examinations

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Innovative impact

Technically supervised e-examinations have a great potential to make studying more flexible in higher education. EXAM is a modern e-examination software developed and used by a consortium of 28 universities and universities of applied sciences in Finland. EXAM is a tool for technical supervision of exams in controlled spaces. The short-term impact of this article includes reflection on how many Finnish universities missed their opportunity for flexible e-examinations during the Covid-19 pandemic. The long-term innovative impact covers the reflection of how the situation can be improved, when we face the same kind of challenges in the future. The authors discuss the theme from the point of view of Tampere University of Applied Sciences (TAMK).

Keywords: e-examinations, evaluation, covid-19, pandemic

EXAM – software and a national higher education consortium in Finland

EXAM is modern software developed and used by a consortium of 28 Finnish Universities and Universities of Applied Sciences. In Finland CSC – IT Center for Science, has a key role in the maintenance and further development of the software. The primary purpose of the EXAM system is to provide an option for flexible e-examinations in technically supervised facilities located in the premises of the universities. Institutions can maintain their own local installations of EXAM or hire the service from CSC as SaaS (software as a service). [1].

EXAM – digitalization of examination

The EXAM system offers students freedom and flexibility to take exams – even to the extent that it has been called a 'self-service exam'. The types of questions EXAM software includes are essay questions, automatically checked multiple choice questions, fill-in-the-blanks questions, true/false statement questions, and any combination of these. The teacher prepares the exam in advance, designing the questions and setting a certain completion period (for example, two weeks) for the student.

When a student reserves a time slot in the EXAM calendar, the system makes a random draw for a suitable computer located in a suitable exam room on behalf of the student. In the next phase the student takes the exam. In some universities these exams are called 'aquarium exams',
as they are often taken in a technically controlled space surrounded by transparent walls. EXAM rooms are equipped with recording cameras, automated surveillance and access control, and they are available for students from morning to late evening. [4].

The three Exam rooms at Tampere University of Applied Sciences have each about 20 computer workstations with a limited selection of software. The computer is only connected to the EXAM system, having no access to the internet. For demonstrating their competence in the exam, the students can use the basic applications installed on the computers, such as MS Office, and they can make CAD drawings or images.

Impact of flexible exams on the well-being of students

Electronic examinations have an impact on the well-being of students, as they can adapt the exams to their own, individual pace of life. The flexible exam practice also makes it possible for many students to work alongside their studies. The flexibility of scheduling associated with booking your own exams gives a sense of control over your own studies [5].

According to Rytkönen and Myyry [5], when students took exams in designated facilities at a time of their choice, they prepared for the exams in the same way as for traditional examinations written on paper. However, subsequent student surveys have provided indications that students feel more prepared for the exam when they are free to book their own exam time.

According to a study by Cordis and Pierce [2], timing of the exams is inextricably related to grades: exams performed at earlier hours of the day often yield lower grades. When more freedom is given to the students of the Finnish universities of applied sciences to choose the date and time of their exams, they tend to prefer the end of the week and the afternoon hours [3].

Pandemic procedures in the EXAM facilities

In March 2020 the COVID-19 situation challenged the traditional onsite examination sessions on the university campuses in Finland. Unfortunately, when the flexible e-exam arrangments were most urgently needed, only about half of the EXAM seats and computers were in use and functioning: to keep safe distances between the students, it was necessary to block out every second of the workstations in the EXAM rooms.

Within these limitations, exams and verification of competences could also be implemented during the most acute pandemic times. According to our observations, the students wore masks quite conscientiously, and they also quite willingly disinfected their hands, the computer keyboards and mouses in the EXAM facilities.

Challenging the teachers

The digital EXAM system challenges the traditional way of thinking, where a group of students takes the same exam at the same time in one space. For teachers it means that exam questions need to be carefully designed in advance. The applicability and reusability of the questions in the EXAM question bank rises to an important role. Therefore, the EXAM system supports random drawing of questions from a large question database.

Not all teachers are experienced enough with the EXAM yet. Some teachers have tendency to limit the student's exam period to a couple of days only. This does not give enough flexibility to the student, and more importantly – the EXAM calendar may be fully booked for those days. Various competency verification tests and final examinations are running in the EXAM facilities on a regular basis.

EXAM Visit

The EXAM system enables supervised competence verification throughout Finland. **Exam visit** means that students can take their exams in the supervised facilities of another university. As the same EXAM system is used in most of the universities in Finland, students can fairly freely and flexibly choose the most convenient location to take an exam within the range from Helsinki to Lapland. The EXAM offers our students both time-related and geographical flexibility. [1].

In the COVID-19 pandemic situation in the middle of March 2020, distance learning was introduced in the universities around Finland. At the same time the electronic examination facilities were closed urgently in most universities. Gradually, the EXAM facilities started partially reopening to students in May 2020. Unfortunately, at this stage the pandemic health security policies of a large number of universities did not allow outsiders to enter the university facilities. These policies practically stopped the exam visits, when they were most acutely needed. Although this very unfortunate, judging harshly decisions made in the midst of an acute pandemic would not be constructive. It is evident that both public health authorities and decision makers inside universities were balancing between the health-based regulations and the efforts to support students with their studies.

Conclusion

Technically monitored e-examinations have a great potential to serve students in higher education. Unfortunately, this potential was to some extent missed during the Covid-19 pandemic, when several universities in Finland reduced access to their e-exam spaces and interrupted their exam visits due to pandemic restrictions.

Taking a retrospective view, the authors of this article hesitate if the decisions made were the most successful ones. Allowing exam visits during the lockdowns could have significantly reduced the students' travelling from one city to another inside the country. The students should have been able to take their exams in a location nearest to where they were residing during the pandemic. While protecting our university facilities we did not necessarily protect our society as a whole. We did not see the forest from the trees.

Comparable examples

EXAM – electronic exam software for higher education.
https://e-exam.fi/in-english/

Electronic exams at Tampere University of Applied Sciences. https://sites.tuni.fi/tamk-exam-en/

EXAM service of Tampere Universities community
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