

Benefits and Drawbacks of Online Assessment

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Abstract

Assessment online has for a long time been seen as a coming use of computers in education. However, there are reasons why it is still not fully used. At many universities around the world computers are used in examination but only on intranet not online on Internet. The computers have been used instead of paper and pencil. This process has facilitated the collection of tasks solved or answered by students at the university. Making a final exam or assessment online answering questions with the help of a computer from an arbitrary place outside a university is rare. Pre-tests, a study that helps to solve exam tasks and preparatory tests for joining a school or university are quite common but passing a university course with only assessments online is not common. We have substituted parts of a final examination online and we are working on a full final examination procedure delivered only on the web.

Keywords—Assessment online, automatic assessment, distance examination, LCMS.

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1. INTRODUCTION

Computers and Internet is a part of our daily contact with the surrounding society. We shop, communicate, order tickets, find information etc. with help of International Center of Technology (ICT). Still there seems to be uses which have some more or less artificial barriers. If there are real barriers that cannot be bridged over perhaps we have to change the procedures which could not be performed or to consider if there is a need for the procedure to be performed. Some of the uses of Internet which got rid of the barriers and perform well are buying and selling online, money transfers, banking business', buying and selling stocks online etc., activities which now works fine on Internet. Security and privacy matters are not any longer a problem if treated carefully and yet there is a substantial resistance to use online assessments in a similar way at universities. Security and privacy are then not the only problems. A specific problem is the identity recognition.

The difference of needed security level can be shown by an example. A bank does not care if you or someone else has done a payment to the bank as long the right sum has entered your bank account. Of course, there has to be a security procedure but who physically typed in a special code in your name cannot be seen. You can authorize someone else to do your banking business. At universities

we are interested not only in how questions are answered but we also want to know whom physically has delivered the answers. In discussions about assessments there seems to be some problems in defining what is meant by assessment on the web. There seems to be a broad "grey zone" from at one end tests and course evaluations and at the other end assessments which are the base for students' credits of a course which eventually will be a part in a university degree curriculum. There are people at universities working on safety plans and this paper is to a large extent a suggestion on how to find a

sufficiently safe system both in terms of student identification and adequate assessment questions. [1]

2. SAFETY STRATEGY

Cheating at universities is probably not less or more common than in everyday life. There are reports from investigations done in most countries in the world stating there are up to 80% of plagiarism found in reports from students. That is a problem as it is very easy to make a report personal by making some changes with the help of processor or some editorial work. However, plagiarism is not a big problem when it comes to assessments.

We often try to hold cheating away from assessments and examinations by carrying out the tests at university lecture rooms, have guard controlling that no illegal activities are going on etc. If examinations took place on Internet and were accessible to anyone we would not be able to control the activities in the similar ways. The strategy used by most universities, colleges and other places where evaluations of students' knowledge and skills must be done is to use a vast number of tasks or questions in the tests.

A combination of tasks with calculations and multiple choice questions (MCQ) provide a broad variation of opportunities. Doing so it is most unlikely that two students will have the same setup of questions and hence there is no idea asking other students what is the right answer at an exam.

This strategy has despite that a rather low security level as it does not ensure that the answers come from the student who has access to the home page of the test. There is still a need for a safer identification system. If all students get different tasks and if it is easier to solve questions as they should be solved instead of spending time on cheating there will be no reason for cheating [2].

Smartly constructed questions (with an access time limit) may make it uninteresting to cheat. Together with a use of Social Security Number, National Security Number or similar private security number a high safety level can be maintained. Perhaps this sound like rather a naive idea but nevertheless it has worked very well during the years we have used this strategy. The problem is less how student behave but how you construct your questions and how to make students' answers unique and traceable to the right student.

3. SAFETY QUESTIONS [1,3]

Safety matters seem to be solvable and the reasons why Internet is not used for assessment might soon be history. We will give some hints on how to ensure that there will be fewer problems with the identity of the student passing an exam if we have more advanced student identification. A security control with two steps will be discussed here.

First we have one in the login procedure and then the second in which a personal identity number will be used in an algorithm creating parameter values to assessment problems.

A. Login Procedure

At most universities a login name and a password together with an email address is given to each student at the university registration. The same login name and password can be used for getting access to a conference system and a Learning Content and Management System (LCMS) used for a university course. Access to the learning environment is only possible for a student when he/she is registered as attendant to a course. At our university we use the Ping Pong as a LCMS.

From this system study material, assessment questions and tasks can be downloaded to the student's computer and later answers can be uploaded to the system.

B. Use of Personal Identification Numbers

The questions given to the students have no or very few parameter values. The parameter values will be taken from the students Social Security Number, National Security Number or other strictly personally related number.

Date of birth together with a PIN-code might also do. In the questionnaire there is a table in which security number should be filled in. The same table then shows input parameters to questions of the questionnaire. If there are digits with value zero there is a note on what numbers should be used instead. As these digits are unique for all students as parameter values all students get unique results. The students are also asked to interpret their results. As the results are different for different students it is relevant to ask if some event or process is possible with the numerical calculation result.

C. Identity is double checked in the Answers

As the result from a student is based on Social Security Number, National Security Number or similar number it is easy to see if the strictly private number has been used. The personal identification number is safely stored in the learning management system and will only be used when tasks are evaluated. Contract may be signed between the student and the university in order to stop misuse of personal identification numbers.

4. BENEFITS FOR THE STUDENTS [4,5]

Study material, as lecture notes, Objective-slides, PowerPoint presentation and assessment tasks can be found at the LCMS or on a course home page and can be downloaded by the students. From students' point of view this is of great value and often there is no need for any other study material. Taking lecture notes - which often is more or less a therapy or a habit than a sensible thing to do – can be omitted. Solved problems will also be delivered online. Sample problems give hints on how to solve the assessment problems.

A. Direct Feedback

The result of the assessment is delivered instantaneously if the answers to the questions are checked automatically by a computer or within a week if someone is manually checking the solutions. So far we have made scripts suitable for Mat Lab in order to simplify the check of individualized answers. At the same time we give some feedback to the students. It is very important to use the unique opportunity to give hints on how to solve problems and to comment what has failed if an answer is wrong. Misconceptions and misunderstandings can easily be handled this way. It is also positive that misconceptions can be handled immediately when they show up. In the future this service will be automatically done by a computer. In most cases a special pattern can be seen in the erroneous answers which simplify the production of computer generated answers and help. Teachers should preferably be seen by the students as someone taking part in students' learning. In the learning management environment it is very simple to send messages to students individually or to a group of students.

B. Study Pace

The students are free to choose the study pace they want. Only dead-lines for delivering assessment tasks influence a student's individual time table. In the beginning student find it very relaxing to study in this way. Soon they become aware that they have to schedule their time more carefully compared to ordinary university courses where the time table is decided. Students simply have to take a more active part in their own studies and learning. Most students are pleased with a study plan which makes it possible to more freely take part in other activities parallel to their studies. For some students a part time job or family life is easier to manage if courses are online.

5. DRAWBACKS FOR THE STUDENT

Some students find it hard to plan their time for an online course. Another problem is the stability of the university server and computer network. Mail systems as well as the LCMS server must have continuous backup routines and safe power supplies. Students are very much dependent on reliable and safe computer systems.

6. BENEFITS FOR THE INSTRUCTOR [6,7]

The preferred spelling the instructor has direct access to all students downloaded material and delivered answers when they have delivered their assessment answers. There is a build-in administrative system and control function in most learning management systems. The system can be seen as a very controlling system but this is also the case at ordinary examinations at universities. The student's future career is at stake which legitimates the procedure.

The instructor also gets good insight in a student's progresses in the course. The control system reveals who need extra help and special attendance. Additional material can be added to the server if a common or general problem or misconception appears during the course.

A. Continuous Insight in the Learning Process

During the course the lecturer can take a look at the login statistics and notice the general understanding of the course material when students use the opportunity to use the dialog and built-in chat system of the LCMS. Students having problems in their studies can easily be helped and advised online.

B. Social Contact with Students

The instructor can take active part in students learning processes during a course by regarding statistics and activity notions from the LCMS. At the same time credits are sent to students as feedback on the tasks solved. The feedback would preferably enclose a positive judgment on good results and/or smart solutions when this is applicable. The personal touch will be appreciated when positive comments are sent by e-mail. If there is a need for fast delivery information to students the learning environment makes it easy to send SMS to individual students, selected group of students or to all students joining a course.

7. DRAWBACKS FOR THE INSTRUCTOR

Construction of tasks and scripts or programs for solving students' tasks takes a lot of time. Extensive time is also needed to examine the assessment tasks given by the students. Some questions can be automatically checked, but questions which involve diagrams and where

students are asked which formulas have been used *etc.* will take a lot of time.

With classes with up to 150 students using ten to fifteen problems all with a number of sub questions there are no larger problems. The questions can be chosen not to include discussions or essays. Essays and discussions can be left to students who want extra credits. This will only be possible for students who have performed 100 % accurate answers in all assessments.

8. Conclusions

- An online course with assessment online put a lot of work to teachers and computer management staff at a university.
- The positive sides are so great when it comes to pedagogy outcomes as well as study results that it is really worth introducing assessments online.
- Students are in general very positive to the change from written exams at the university to assessment done at home or from a computer hall. Those students who have done their entire tasks online during a semester are also those who have made the best performances at the final examination at the university.
- All assessment credits gained during the course will be added to final examination result and hence improve their score and course credits. Soon final assessment or examination will be obsolete.
- There is simply no need for a written examination at the university. The fraction of students passing a course has been doubled after the introduction of personalized tasks (in the beginning we introduced a paper version of home work).
- From having very few passing a course earlier there are now very few who do not pass the course. Assessments or examination online is already working fine and the step to a total assessment online is on the way.

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فوائد وعيوب التقويم على الأنترنت

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المستخلص

التقويم على الإنترنت منذ فترة طويلة كان يُرى من أهم استخدامات الحواسيب في التعليم. ، هناك أسباب على أية حال أدت إلى كون هذا المجال ما زال غير مستعمل على نحو كامل. في العديد من الجامعات العالمية الحاسوب أصبح مستعملاً في الاختبارات لكن فقط على الإنترنت ولكن لا على الإنترنت يتم استخدام الحواسيب بدلاً من الورقة والقلم وهذه العملية سهّلت بدورها مجموعة من المهام من ناحية الدقة والسرعة في الأداء. إجابة التقويم على الإنترنت بمساعدة الحاسوب من مكان خارج الجامعة هي في صلب محور البحث المقترح. استبدلنا أجزاء الفحص النهائي على الإنترنت والعمل جار على إجراء فحص نهائي كامل يسلم على الشبكة فقط. توصلت الدراسة الى مجموعة من النتائج والرؤى.

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