Theory and Practice of Online Assessment at Comenius University

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Abstract
Assessment is an integral part of teaching. This goes for online teaching too. This article focuses on theory of online assessment and its specifics. We discuss an overview of research as well as knowledge gained from our experiences.
Part of the article is also dedicated to a short survey among Comenius University teachers and their views of this issue. We focus on the issue of cheating in an online environment and the ways to prevent it.

Keywords: online assessment, cheating in online environment, teacher experience

JEL Classification: A290, I210, I230, 1290

1. Introduction
Due to the pandemic, in March 2020 Comenius University switched to fully online distance education. It was an unexpected change and in certain aspects we were not prepared technically or methodologically. Covid took control over all aspects of social life and our university was not an exception. However, it was clear that the situation was not going to change anytime soon, we needed to act and the teaching needed to go on.
The Training Center within the Center for Information Technologies of Comenius University took on providing distance learning support in the form of training, consultations and helped by preparing guidebooks and instructional materials. We focused on two university supported environments – Moodle and MS Teams. With a few exceptions, the willingness of teachers to transfer their classes online was very high – evidently shown through the high participation in our meetings and workshops. Many teachers were clearly stepping out of their comfort zone in order to keep the teaching process going without major problems.

However, change comes with the need for adjustment and issues concerning online assessment became more pronounced with the end of the term in sight. One thing was clear – if we simply transfer assessments used in the classroom into an online environment without any changes, we can’t expect it to work exactly the same way. So we created a Methodology of Online Assessment Guide for our teachers that summarizes the specifics of online assessment. The Guide is based not only on literature, but also on our experiences.

This article contains information on online assessment and its specifics. We have not focused only on the theoretical aspects of these issues; we include lessons learned from experience with online assessment at Comenius University. We are trying to bring attention to the importance of following certain rules when assessing students online in order to limit cheating in an online environment. This article also includes views and opinions on online assessment from our teachers, their experience with different tools, and the problems they faced.

Our results might be useful for further development of online learning in the future.
2. Theory – Methodology of Online Assessment

In a learning environment, assessment takes two forms.

Summative assessment (Perera-Diltz, 2009) measures the end product – it is a more formal final evaluation at the end of the term. It represents an appraisal of whether learning outcomes were achieved.

Formative assessment (Perera-Diltz, 2009) provides ongoing evaluation. This is an assessment conducted multiple times during the term. In an online environment, formative assessment grows in importance, because it can provide a means to ensure a student’s involvement during the term (Perera-Diltz & Moe, 2014).

For formative assessment, it is not always necessary for the teacher to do all the evaluation work. Techniques for peer-to-peer assessment and self-assessment are also available.

A number of authors (for instance Lederman, 2020 or Reed Osika, 2021) mention the fact that many faculty members believe that assessment, or online assessment means multiple choice tests. There are, of course, many more options that have better chances of engaging students and keeping them interested. Below is a short list of various engaging online assessment options with short descriptions and tips based on research and personal experience of the authors.

2.1 Assignments

Assignments in an online environment can have many forms (Berkeley CTI, 2022). Besides a classic research paper as homework, students can submit a memorandum or briefing, annotated anthology or a course reader, a fact-sheet, or a journal article, etc. Assignments can also be submitted in the form of pictures, audio or video files.

In the case of larger assignments, for instance a research article, studies recommend the use of scaffolding (as seen in Empire State College, 2020). It is a strategy of breaking down a larger task into smaller assignments that focus on particular skills the students will need to complete the large task.

2.2 Discussions

Conducting discussions as a teaching and learning tool has a very long history. Discussions are a tool that support critical thinking, while providing teachers with an opportunity to find out how well students understand the content. It is also a good tool to keep students involved during the semester. Discussions have been heavily used in online learning since the 1990s, often they are referred to as the “backbone of online learning” (Palloff & Pratt, 2011).

Online discussion can be conducted in a synchronous mode (in real time, or in the form of video, audio or chat) or asynchronous mode (participants contribute at different times, over a few days, usually in a text form). For online discussion to be successful and to support development of critical thinking, it needs to be very well planned and moderated (Bender, 2012)

2.3 Group Projects

Learning is a social activity, and for many learners the feelings of community, communication, and collaboration with classmates; and the feeling of not being alone through the journey are one of the most important parts of the process. The feeling of community develops naturally in the physical classroom, but online students are isolated behind their computers. Thus, online
teachers need to put some thought, planning and effort into creating the community feeling. Group projects and activities are one way to help resolve this issue.

Many teachers also use group projects as a tool in the physical classroom. Sometimes they are a success, sometimes not so much. An unsuccessful group project means good students doing work for the lazy ones, while a successful group project means productive collaboration and knowledge sharing (Lieberman, 2018).

The planning of group projects and activities in an online environment is not very different from planning group projects and activities in a classroom. However, there are factors that need to be taken into consideration such as issues of planning, creating groups, providing collaborative space, monitoring the collaboration, and giving feedback (Lieberman, 2018, Smith Budhai, 2016).

2.4 Presentations

Online presentation as a tool can (University of Leeds, 2021)

- Help students to improve their communication skills
- Offer students an opportunity for group collaboration and peer evaluation
- Provide teachers with an opportunity to see whether and how students understand the content and whether they know how to apply the knowledge they gain.

Presentations, whether individual, or in groups require more planning and guidance in an online environment (University of Waterloo, 2021).

2.5 Tests

Finally, even though there are many assessment options, tests are still the most often used assessment tool in the classroom as well as in an online environment. Learning Management Systems used online will enable most of the tests to be corrected and graded automatically, which makes these tools attractive for many teachers.

Preparing tests in online environments requires more preparation and consideration of some factors, such as (University of Waterloo, 2021):

- The impossibility of completely preventing cheating in the online environment
- Considering whether the test can be replaced with method of evaluation that individualizes the task and limits cheating opportunities
- Students needing more time for questions in online environment
- Students needing to know what to do in case of Internet trouble or other technical difficulties
- Being available for questions and troubleshooting before and after the test
- Being aware that whether you prohibit it or not, students will probably have a textbook or Internet browser open on the side while writing the test
- Understanding that a shorter time limit might discourage students from being able to search for answers in the textbook, but it can also make them stressed and panicking.
3. Practice – Online Assessment at Comenius University

Comenius University in Bratislava, Slovakia has about 22,000 students, 13 faculties and over 900 different study programs. Before Covid, Comenius University was not providing any fully online courses to students. Both MS Teams and Moodle systems (that Comenius University offers to teachers and students, and provides training and support for) were used to support classroom teaching. MS Teams and Moodle have been Comenius University official supported e-learning platforms. At the beginning of 2020, MS Teams at Comenius University had 248 users and Moodle support was used for approximately 900 courses.

This all changed in Spring 2020. By 2021, there were 10,601 users on MS Teams and 1,547 courses on Moodle. As of today (March, 2022), there are 2,469 courses on Comenius University Moodle and 19,695 users on MS Teams.

In December 2020, we conducted a survey among students and teachers of Comenius University concerning online teaching and learning. 357 teachers participated. 3,016 students took part.

Concerning assessment, 302 of the teachers (84.6%) stated that they used MS Teams videoconference or chat for discussions, group work and more while 13 of them (3.6%) claimed they used Moodle applications (discussion forums, chat, Wiki, workshop) for discussions, group work and more.

Furthermore, only 135 of the teachers (37.9%) claimed to use MS Forms for online testing and 103 (28.9%) claimed to use tests in Moodle.

At the same time, in December 2020, we conducted a survey among Comenius University students. They were given questions similar to the teachers. 3,280 students participated.

Concerning assessments, 2,703 of the students (82.4%) claimed their teachers used MS Teams videoconference or chat for discussions, group work, etc., and 303 of the students (9.2%) claimed their teachers used Moodle applications (discussion forums, chat, Wiki, workshop) for discussions, group work, etc.

This suggests some variability in assessment approaches.

In the school year 2021/2022, over 28,000 video conference meetings were held and 5,571 tests in forms were created on MS Teams so far.

In the school year 2021/2022, and across 2,649 courses, there have been 11,333 tests, 7,647 assignments and 1,284 discussion forums on Moodle.

So even though there is a variability in assessment approaches, online testing clearly has a large presence.

4. Theory – Cheating in Online Environment

Professors often think that students cheat more in an online environment (Lederman, 2020). It seems to be a general perception among teachers (Weimar, 2015).

In 2014, Viktoria Beck (Beck, 2014) conducted a study on this issue. She interviewed faculty and asked students whether they would cheat and in what circumstances. She also reviewed test results. She made an assumption that if a student with good prior results received a good result on a test, it could be expected and cheating was probably not involved. If a student with poor previous performance suddenly received an excellent test result, there are chances that cheating might have
been involved. This way she reviewed student results from both face-to-face and online courses and interestingly enough, she did not find higher chances of cheating in online courses. She concluded that the probability of cheating was the same in both forms of delivery.

There are reasons for this:

- A moral reason: those who want to cheat will find a way independently of the form of the course. A student who is not morally inclined to cheat will not cheat in an online course just like they would not cheat in a face-to-face course.

- A technical reason: students have access to electronic devices such as cell phones, tablets, applications, websites and social media even when they are taking a face-to-face course. Their access to information and resources to use for cheating doesn’t increase when their course is taught online.

While chances for cheating might be the same in both an online course and a face-to-face course, some of the methods to prevent them might be different for an online environment.

Vladimir Burjan (2020) listed 5 strategies to prevent cheating in an online environment:

1. **Strict Monitoring.** The author does not recommend this as a good strategy, because it is downright impossible for a teacher to compete with students when it comes to technology – especially when students are working from home. There is a number of software and applications like Safe Browser, ID check, computer locking, etc., but these are only really effective when in a computer lab with appropriate technical support.

2. **Differentiation of assignments.** This is a good strategy to eliminate copying each other’s work among students. The assignments don’t need to be completely different for each student, it is enough to change one parameter. A good idea is individualization, i.e. the topic of the assignment is connected to the individual student (for instance a description of a family member).

3. **Tasks where even Google won’t help you.** The main idea of this strategy is to create assignments, where answers can’t be found online easily.

4. **Assignments that require working with the internet.** If it is not possible to prevent students from using the internet, you can create assignments that require it and might be aimed to teach students how to work with the internet more efficiently.

5. **Assignments that spark interest.** The theory behind this strategy is that if students are not interested in topic of their assignments, there are higher chances they might cheat. If the topic of their assignments is interesting to them, then they might enjoy working on it and look forward to learning something about the topic.

Further strategies against cheating online can be found at the SUNY website (2021) and University of Illinois (2021), where we added our own tips and experiences. These strategies can be split into:

**A: Strategies for final written assignments:**

- Ask students to continuously submit partial work for feedback, such as notes, structure, research review etc.

- Not allow students to select the topic of their final assignment completely by themselves.

- Ask students to collect some original data for their final assignment.
● Require proper citations and list of references for their assignment (or ask them to provide the text they reference to).
● Get to know the students and their writing styles during the term.
● Use the sites most often used by students to copy from as examples even before they start working on an assignment.
● Explain to the students what plagiarism is and what consequences they would face if they decide to do it.

B: Strategies for tests in online environment
● Use different questions for different students (random questions function).
● Set a time limit for your test.
● Making the test available to all students at the same time.
● If possible, tests should be taken in a proctored computer lab.
● Include open-ended and personalized questions that can’t be copied easily.

Cheating in education has been around for a very long time. Hidden notes, whispering or other forms of cheating are common in the classrooms. Cheating exists in the online environment too and the problem is that in this environment teachers have a harder time trying to prevent it. That is why the above mentioned strategies are important, because as Karel Čapek said: “If homework can be simply copied, it deserves to be”.

5. Practice – Cheating at Comenius University
We attempted to get some insight into the issue of cheating and assessment methods used in the online environment at Comenius University. We are planning to run one more whole-university survey for teachers and students towards the end of the 2021/2022 school year that will include questions about assessment and cheating. In preparation for the survey, we collected some preliminary information. We contacted some of the teachers active in the online environment by email and asked them a few questions about their methods of assessment and their experience with cheating online. We received 28 answers. Here is what we learned.

5.1 Question: What assessment methods have you been using in your online teaching?
24 out of 28 teachers claimed to be using tests. However, in addition to the tests, 18 teachers used written assignments, 14 teachers assessed students by oral examination over video conference, 9 teachers used projects as a form of assessment, 3 teachers conducted assessment via email and 2 teachers claimed to assess students via discussion.

5.2 Question: Which platform have you been using to assess students online?
15 teachers have been using MS Teams, 15 have been using Moodle, and 3 claimed to be using email.
5.3 Question: What tools have you been using to assess students online?

23 teachers have been using MS Teams, 8 claimed to be using MS Forms, 17 teachers claimed they were using tests and assignments in Moodle, 4 claimed to be using email, 4 have been using Mentimater, and 3 teachers have been using Kahoot.

5.4 Question: Were you satisfied with the options that these tools and methods provided? Are you planning to continue to use these tools and methods in the future?

23 of the teachers claimed they were satisfied with their use of online assessment, and 22 of them stated that they will continue to use some of the tools in the future. 10 of them emphasized that they will evaluate all their tools and select carefully which tools and methods they will continue to use to support their face-to-face courses. One of them explained that students like electronic forms of assessment better: it is how they communicate, they are used to it. She said, “Now, when we can teach face-to-face again, to a group of over 70 students, I asked them to choose whether they want to do their test with paper and pen, or online in Moodle. Not one of them wanted the paper.”

However, there was one teacher, who claimed that they are not planning to use online assessment in the future. They see it only as a poor replacement for real teaching and would use it only if another emergency like corona occurs again.

5.5 Question: What problems have you encountered concerning online assessment?

10 of the teachers claimed that they have not experienced any significant problems. 12 teachers stated that the main problem has been a weak internet connection on the side of the students. Only 7 of the teachers listed cheating as the main problem of online assessment.

5.6 Question: What are your experiences with cheating in an online environment?

14 teachers stated that they don’t think cheating was a large problem, 4 stated that students have been cheating online more than in classrooms and 5 teachers believed that cheating issues were basically the same whether online or in the classroom. One of them suggested that it was the students who at the beginning had a feeling cheating might be very easy online.

5.7 Question: How have you been preventing cheating in an online environment?

11 teachers stated they demanded students to switch on their cameras during exams, 11 teachers were using shorter time limits on tests, 6 teachers were using randomly selected questions, or a tool to shuffle questions or the answers within the question. 6 teachers claimed they individualized questions and assignments, 5 teachers said they assess students’ knowledge and understanding by having discussions with them and two teachers explained they appealed to students’ honor and moral integrity. One said, “The key is to work with the students during the whole term, give them creative assignments and dutifully read everything they write. Then you know if they are cheating”.
5.8 Question: Based on your experience, what are the advantages and disadvantages of online assessment?

17 teachers saw automated grading of tests as the best advantage. They also listed flexibility (4 teachers), lack of commute to school (4 teachers) and the fact that all tests and assignments are automatically saved and archived (9 teachers) as other advantages. As disadvantages, 12 teachers mentioned cheating, 5 listed technical problems, 4 mentioned time-consuming work on test preparation. 7 teachers also stated that they simply prefer face-to-face contact with the students they teach.

6. Discussion

The short email interviews with 28 teachers are not able to provide a complex view into the thinking of all teachers at Comenius University, but they provide some valuable examples. Teachers’ views on cheating in an online environment differ, and not everybody is convinced that an online environment makes it easier.

Based on the answers received we can say that the teachers managed to eliminate the cheating problems they were most worried about. It is interesting to note, that within our small inquiry of a few selected teachers’ opinions, those teachers who stated that they have been using individualized assignments, projects, discussions or open ended questions are the same ones who think that cheating by their students was not a problem for them.

“All of my assignments require creativity, or application of knowledge, etc. I never ask them to simply repeat information. Students have no opportunities to cheat this way”.

There is a clear connection between making assessment more individualized and creative and lowering the occurrence of cheating. Now that universities can move their teaching back to classrooms, teachers who don’t like to teach online will no longer be forced to do so. Online teaching will be further done by teachers who are interested in it and hopefully those who will be willing to be more creative with assessment methods.

The same applies for students. During Corona time, all students were forced to learn online. The transition was very stressful for everybody, including students. Students are more likely to cheat when under stress, when the norms are unclear and they are presented with opportunities (Lederman, 2020). One of our interviewed teachers elaborated on their experience, “During the Spring semester 2020 almost a third of my students were trying to cheat...During further terms, the amount of students cheating went down. They either realized that doing tests without cheating is better, or they learned to cheat in a way I am not able to track”. As we move into the future, where only students interested in taking online courses will be taking them, the stress element could lower significantly.
7. Conclusion

After years of pandemic, some of the changes remain. Education is not exempt from these changes. We are still about to feel the consequences of some of them. The changes are not all negative. There is a good chance that some of the study programs that were taught fully online during the pandemic will remain online or in a hybrid form in the future. Past years have shown us that even though online learning has its limits, there are many advantages to its use. It is important though to know and respect its specifics, as online teaching differs from face-to-face teaching.

Online assessment is an integral part of online teaching and it needs to be planned and conducted smartly in order to avoid problems. Our Training Center published a guidebook for Comenius University teachers titled Methodology of Online Assessment. Besides theoretical recommendations, we included practical advice and experiences from teachers at Comenius University in Bratislava.

We don’t want to compare incomparable things. This means that classroom teaching will always have the central spot on the stage, but with the experience we gained, we have a unique opportunity to move further and take advantage of what online learning can offer. If online learning is to continue, it is of key importance to provide the teachers with proper training opportunities for them to be able to handle not just online learning systems and tools, but also to be equipped to methodically plan their assessments.

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References


