

Use Of Electronic Assessment Systems In Education

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INTRODUCTION

Student assessment refers to processes in which evidence of learning is collected in a planned and systematic way in order to make a judgment about student learning (EPPI, 2002). It envelops summative and formative purposes, and might be planned and executed inside the school or remotely through centralized assessments.

Assessments are of different types, summative assessment, formative assessment, diagnostic assessment and prognostic assessment.

Summative assessment (assessment of learning) is aimed at summarizing the learning which has taken place in order to record, mark or see the achievements.

Formative assessment (assessment for learning) is aimed at finding the learning difficulties and recognizing the difficulty areas in the learner so as to provide remedial measures. Formative assessment is often taken place just after teaching a concept or while the teaching-learning process is going on.

Diagnostic assessment (pre-test) is aimed at understanding the students' previous knowledge on a topic or subject. It also gives an insight to the teacher that how much the students do not know about a topic or subject. This helps the teacher to design the lesson.

Prognostic assessment (predictive assessment) is aimed at foreseeing the future development in terms of any skill. This is mostly used in career planning.

ELECTRONIC ASSESSMENT SYSTEM

Electronic assessment is also known as e-assessment, digital assessment, or online assessment. It is basically a process of conducting the assessment with the help of information technology. Assessment is done by using any assessment tool or a combination of different tools.

A tool consists of different test items. Generally test items are of different types, objective type and subjective type. Objective test items are having high objectivity and give no freedom to the learner to express his ideas or interpretations. A subjective test is evaluated by giving an opinion. It can be compared with an objective test, which has only right or wrong answers.

The e-assessment can include both the objective and subjective type of test items. With the help of computer technology, objective type test items can be easily evaluated. The evaluation can be more objective than doing it manually. Answers to subjective test items can also be evaluated digitally with the help of some scoring keys. Still, it is always better to evaluate subjective

answers manually even if it is a part of e-assessment system. In such cases answers to those questions can be reviewed by the tester manually and update the score or grade against them.

A system developed for assessing students learning can be defined as an Electronic Assessment System (EAS). The administration and evaluation of such assessment can only be done through any electronic gadget.

TYPES OF ELECTRONIC ASSESSMENT SYSTEMS

Online assessment can be done for different purposes. According to the functions, online assessment systems can be categorized under different headings. They are discussed below.

1. Discussions
2. Quizzes
3. Projects
4. Presentations
5. Case studies
6. Virtual labs and simulations

1. Discussions

Discussion forums can be used for promoting discussions among the students. The entire class can be divided into different groups of students. Each small group can have a leader or spokesperson who posts their group's ideas on the forum while the others can answer to the queries on it.

Discussion can be designed to have real time discussions (synchronous) and/or asynchronous. Usually discussions are a time taking process, hence the discussions are promoted to continue for a predefined time. For example, one group can be assigned to post a subject/idea for discussion in a week. All the students can contribute to the discussion on that subject. The group members will answer to the query or clarify the doubts. This discussion can be closed after one week when a new discussion by another group is started. The cycle can be continued.

The assessment can be based on certain grading criteria. Different rubrics can be designed by the teacher to grade students' performance. A sample rubric¹ is given below.

Criteria	0 points	1 points	2 - 3 points	4 - 5 points
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¹ How do I assess student learning in online discussion forums?, <https://www.teachology.ca/>

Initial Posting Content	No posting is made in response to posed question.	Response attempts to answer the question is not specific or is vague.	Response addresses the question with thought and clarity.	Response addresses question with thought, clarity and analysis, showing depth of understanding through application of module content: i.e. from reading material and/or lecture content.
	Post is inappropriate and subsequently removed by professor.	Appears somewhat off-topic and/or does not address main point.	Applies content and material from the course readings and/or lecture content in the response.	Applies concepts outside of course content which relate to question demonstrating thoughtful analysis through use of appropriate examples.
Follow-up Posts	Makes 0 posts	Makes 1 posting. Responses are one or two sentences in length.	Responds to initial question and responds to one or more classmates by Saturday. One or more postings include references to class content, either readings or lecture content.	Responds to question and responds to one, two or more classmates with thoughtful and supportive responses by Saturday or earlier. One or more postings include references to class content AND related content from outside sources. Promotes further discussion and thought by asking questions of fellow classmates. One or more posts written in response to a classmate is a minimum of 100 words
Word Count		Word count for initial post is between 75 and 150 words.	Word count for initial post is between 151 and 250 words.	Word count for initial post is 251 words or more.

Timing	Responds by Saturday or later in the module week.	Responds by Saturday or earlier in the module week.	Responds by Friday or earlier in the module week
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Based on the rubric which we prepare, the gradebook can be prepared in our learning management system. Moodle is an LMS which has the gradebook feature in it. The system will provide the students' performance in the discussions.

Discussion Platforms:

1. Moodle LMS (Free)
2. Kialo (Free)
3. NowComment (Free)
4. YO Teach! (Free)
5. Backchannel Chat
6. Turnitin

Role of Teachers:

- Provide rules, cutoff times, and discussion forum platforms.
- Make different student groups and assign or suggest the topic or area for discussion democratically.
- Promote healthy discussion among students and intervene wherever required.
- Elucidate learning objectives while choosing discussion topics.
- Create a new subject when there is an intriguing point teacher wants to emphasize from previous/ongoing student discussion.

2. Quizzes

Online quizzes are alternatives to the paper pencil tests which we conduct in our classrooms. The tests are required at any stage of learning, while teaching, after the completion of learning a concept, unit or a term. Teachers need to ask questions or take class tests in order to check the progress of learning and to improve the teaching-learning process. The conventional technique of asking questions to some students randomly do not offer equal chance to all the learners to answer to the questions. Hence their responses are not considered. Due to the lack of time, teachers skip the class tests or unit tests. Teachers fail to check the entry behaviour and exit behavior of the learners in all the sessions. These difficulties or lacunae can be avoided by using the online quizzes effectively.

Quiz platforms:

1. Quiz maker
2. Vocabtest (Free)
3. ClassMarker
4. GoConqr
5. Online Quiz Creator
6. Quiz revelation
7. Hot Potatoes (Free)
8. Google Forms
9. Flubaroo
10. Wondershare Quiz Creator

We can use the 8th and 9th tools together. Google forms can be used to make quizzes while Flubaroo is used for grading purpose.

Role of Teachers:

- Quizzes can be pre-planned by keeping the learning objectives.
- Short quizzes must be preferred. Quizzes for formative assessment must not include more than 10 questions at a time.
- Students' responses with right and wrong responses can be displayed after the quiz.
- Quizzes can be shared with the students through any online media so that students can practice later.

3. Projects

Project is an individual or collaborative attempt to acquire and apply the knowledge to tackle a difficulty, to find a solution to an existing problem, or to create something new. This is usually considered as a teacher initiated student driven learning process. The teacher lists a number of problems/situations for the project and the individual or group chose the one suitable for them. The project idea is then reorganized for making the objectives with the help of the teacher. The students then start to explore and undergo with their project. The report of the project is finally submitted followed by a discussion or project presentation. This long process can now be brought into digital platforms for improving its effectiveness.

From the selection of topic to report presentation, all the processes can now be integrated to any online learning platform. The teacher may list the topics, the students can chose one so that the topic will not be available to the others. The students can be encouraged to update about their work progress on daily basis on a website/blog/forum/discussion board etc.

The self-evaluation forms or rubrics can be distributed to the students. The performance of the students can be evaluated by the teacher with the help of any online grading tool.

Project Platforms:

1. Sciencebuddies
2. WordPress

3. Basecamp
4. Freedcamp
5. Blogger
6. Zoho Projects
7. Asana
8. MeisterTask

The customized website for the project management and discussions can be made by using the features of WordPress and Blogger though they are not project management systems.

Role of Teachers:

- Distribute the topics/area of subject relevant for the project
- Assist the students to schedule the project
- Provide support with resource
- Provide a common online project management system
- Monitor the progress of project
- Evaluate the process and product

4. Presentations

Teachers and students use technology in classrooms mainly for the presentation. Presenting the slides using any presenter software through a LCD/LED projector is very common in our classrooms. Teachers are usually engaging the students by giving some tasks of presentations. The presentation can either be done individually or in collaboration.

Online presentation platforms can be used for enriching this activity. By using online presentations students and teachers can collaborate even after the school timings. Every learning management system has the feature of online presentation. Besides these the dedicated online presentation systems offer unique features.

Usually the teacher aims at assessing the presentation on the following grounds.

Material	Knowledge of topic
	Organization
	Content
	Use and quality of visual elements
	Accomplishment of objectives
Presentation	Communication skill

Time management**Ability to answer questions**

One way to add the scores or grades to a presentation is adding the score to the gradebook in the learning platforms. The other ways are by writing a detailed comment including the score/grade or rating the presentation on a rating scale.

Presentation Platforms:

Presentation can be made by using any application such as Microsoft Power Point, OpenOffice Impress, Apple Keynote, Prezi, Corel Presentations, Adobe Persuasion, Flowboard etc.

The presentation can now be embedded with any webpage such as blogs, web-based student-generated quizzes, video/audio, or slide shows. Some of the best online presentation tools for the students are:

1. Prezi
2. Glogster
3. Google Slides
4. Haiku Deck
5. Powtoon
6. Emaze
7. Thnklink
8. Adobe Spark
9. Tiki-Toki
10. Canva
11. Raw Shorts

Role of Teachers:

- Provide the topic
- Suggest any common platform for designing the presentation
- Provide a web page / decide a good online platform for presentation
- Add grades to the grade cards
- Provide feedback

iv. Case Studies

The case can be anything where students need to study in detail about it. The cases must be interesting to the students. They must have relevant background knowledge about the issue. For the discussion on the case studies, it is always good to prefer asynchronous communication media such as blogs, websites, discussion board etc. instead of chat because students have more time to reflect and collaborate.

A case report can be presented or posted to the common platform. Others including the teacher can make questions and queries. The team members have to clarify the queries and answer the questions. The teacher may evaluate it and assign grades to the performance of all the students.

Case Study Platforms:

1. Quora
2. Student Edge
3. StackOverflow
4. Kaskus
5. Reddit
6. Slack
7. G Suite (Google Hangouts)

Role of Teachers:

- Challenge the students by giving appropriate case study topics
- Check the background knowledge
- Provide support materials
- Promote discussions on online platform

5. Virtual Labs and Simulations

Laboratory sessions are very essential for the learning of science subjects. Unfortunately, the number of laboratory hours given to secondary classes are very less when compared to the time given for theory classes. This can be overcome by giving virtual laboratory system and simulations to students through their learning management systems.

Many PhET by University of Colorado Boulder has developed a lot of useful simulations for the science subjects. The teacher can find the better simulations and virtual laboratory packages and embed them with the learning management system of institution's website. The students learning through these can be assessed by using any assessment strategy.

Virtual Labs and Simulation Platforms:

1. PhET Interactive Simulations
2. PraxiLabs
3. Prepmagic
4. Molecular Workbench
5. Labster
6. BrainPOP
7. Myphysicslab
8. NTNU JAVA Virtual Physics Laboratory
9. EDinformatics
10. Fear of Physics
11. Physics Classroom

Role of Teachers:

- Choose the right online platform of virtual lab or simulations
- Organize the content by including relevant simulations
- Include quiz for each concept
- Provide a test at the end for giving feedback on learning

CONCLUSION

Online learning systems cannot be kept away in this digital time since the learners are digital natives. The effectiveness of learning management systems depend on the organization of the content in it. If the teacher is skilled to mix with the relevant content in the most appropriate format, the system will be effective. The assessment of the students learning cannot be conducted by merely using paper pen pencil now a days. Enhanced learning takes place when the teaching-learning process is extended to out of classrooms environment. Any time anywhere learning is getting more acceptance, hence online assessment too. Equipping of the teachers for the modern time's teaching is the real challenge. The right spirit of the teaching through technologies must also be molded in the teachers from the pre-service training onwards. Hands on training of using and developing e-content and e-assessment modules must be accepted as an objective of the teacher training programs.

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