

4. ONLINE ASSESSMENT AND EVALUATION TOOL IN A PROFESSIONAL INSTITUTION — A CASE STUDY

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1.0 Introduction

In today's competitive environment, the role of a teacher is changing. It is important for teaching fraternity to have a vision of their roles and responsibilities to provide the best teaching strategies for their students. The role of a teacher is a dynamic one that requires individuals who are able to create a virtual climate that encourages meaningful individual and collaborative learning. Assessment is an important element of the teaching and learning process that challenges teachers to consider evaluation techniques that meet the learning needs of today's learners. The process of assessment involves gathering information from a variety of sources to cultivate a rich and meaningful understanding of student learning. A primary aim of assessment is to provide; the necessary information to improve future educational experiences. Yet, it is vital that the assessment data be accurate and relevant to effectively make informed decisions about the curriculum. It requires taking time to ask relevant questions that help evaluate the effectiveness of the teaching strategies and curriculum plans.

A holistic view will consider evaluation of a vital part of the entire teaching and learning process. Learning should be evaluated to help individuals, note their academic strengths and deficiencies that can be corrected during and after a course. The student should be given information on the quality of their work to enable them to have an accurate view of their learning.

Additionally, the students should be given specific suggestions on how to improve their academic performance. Students consider teacher assessment procedures as a relational prompt that transcends receiving grades marks on assignments. The absence of consistent teacher feedback creates doubt in the students' minds about their academic abilities while their classes seem more impersonal. The important purpose of evaluation is to determine if all the learners developed relevant knowledge, skills, and attitudes as a result of the program. Appropriate assessment instruments can offer valuable information to teachers, students and administrators. Ultimately, evaluation is important to the educational process because it provides feedback on whether the learning objectives of the course, have been achieved to desired satisfactory levels.

2.0 Relevance of on line assessment and evaluation

The advent of alternative assessment techniques has come about as the result of the limitations of the conventional evaluation methods. It is interesting that more and more educators are using alternative assessment methods. There are two major differences between educators who use conventional evaluation methods and those who use alternative assessment methods. The first is that the former tend to give fewer assignments to students for assessing their performance. They

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also tend to lay more stress on tests and term papers for assessing student work. In contrast, teachers who use alternative assessment procedures are more likely to use a variety of assignments that might include portfolios, Power Point presentations, book reviews and interviews of study participants.

Alternative assessment methods are promoted as a way to encourage authentic learning. Students are given a diversity of learning opportunities to display critical thinking skills, depth of knowledge, connectivity of learning with their daily lives, development of a deeper dialogue over the course material and fostering of both individual and group oriented learning activities. Alternative assessments offer teachers new perspectives on student learning such as insights into their individual learning styles. It has been reported that alternative evaluation methods require large amounts of time to develop and integrate into the curriculum. Alternative assessment projects can encourage reflective thinking and self-directed learning activities involving personal development of knowledge. Students are taught to be knowledge developers, not just receivers of information. Teachers can promote higher order thinking skills by having evaluation procedures that allow students to vary their responses to questions. It is essential that teachers provide clear criteria that support high academic standards and bring consistency to the grading process.

The student-centric model of learning encourages teachers to view their students as academic partners who work together to produce relevant and meaningful learning experiences. It requires professors who are willing to change their standard teaching methods. They will be reoriented to understand student perceptions and assessment processes. They would also be assisting students in the interpretation of data with respect to their learning. The major features that are considered as the hallmark of student-centric teaching are:

- Students are actively involved in learning and receive feedback.
- Students apply knowledge to enduring and emerging issues and problems.
- Students integrate discipline-based knowledge with general skills.
- Students understand the characteristics and importance of extraordinary work.
- Professors coach and facilitate learning rather than merely teaching.
- Students' interpersonal skills improve since mutual learning possibilities exist.

Assessment is the process of documenting, usually in measurable terms, knowledge, skills, attitudes and beliefs. Assessment philosophy and practices must affirm that learners do vary in their needs due to such factors as having different cognitive experiences and educational backgrounds. Therefore, it is important that learning should be more individualized and offer significant connections to their personal and professional lives. Assessment procedures need to foster a meaningful bridge between academic knowledge, skills and experiences of the classroom and the student's daily activities. Teachers are challenged to create evaluations that reflect respect for learners' experiences.

A major concern among academic officials has often focused on the quality of educational experiences within an online class. Studies indicate that the essential features of a good course include interaction between teachers and students, a student-centric approach and built-in opportunities for students to learn on their own. There are a variety of factors that can have either a positive or negative impact on the online educational setting. These factors are:

- the level of expertise of the online faculty (technical & online experience);
- the degree of administrative financial support;
- the technological infrastructure of the college;

- student support system to handle academic and computer related issues;
- the depth and quality of faculty training and professional development programs.

3.0 Process of on line assessment and evaluation

The process of online assessment evaluation stresses that teachers must establish criteria for evaluation and students need to have a good understanding of the critical thinking process. The following are the representative criteria to be considered during online assessment and evaluation:

- Essential critical thinking skills
- Definition and clarification of the problem
- Identification of central issues or problems
- Comparison of similarities and differences
- Determination of relevant information
- Formulation of appropriate questions
- Judgment of information related to the problem
- Distinction among fact, opinion and reasoned judgment
- Check consistency
- Identification of unstated assumptions
- Recognition of stereotypes and clichés
- Recognition of bias, emotional factors, propaganda and semantic slanting
- Recognition of different value systems and ideologies
- Drawing of Conclusions / Solution to problems
- Recognition of the adequacy of data

- Prediction of probable consequences

Evaluation is the systematic determination of merit, worth, and significance of something or someone. Evaluation is often used to characterize and apprise subjects of interest in a wide range of human enterprises, including engineering education.

4.0 Deployment of on line assessment and evaluation tool

This paper is the result of design and development of online assessment and evaluation software implemented at R.V.C. of Engineering, Bangalore which is one of the premier technical institutions in the state of Karnataka. This system has been implemented for post graduate courses offered in the college. Internal assessment tests are conducted on a trial basis and will be extended to university examinations in due course. The evaluation of students and its comparison for one of the subjects is shown in Annexure-1. Similarly the statistical analysis is carried out for M.Tech subjects of Mechanical engineering, Telecommunication, Electronics and Computer Science and Engineering. The comparison between regular test and online test analysis has revealed that the average marks of the class have increased and the deviation has reduced.

● System Requirements

- The server
- The Web browser
- Client requires any browser on any operating system.

● Creation of data banks and tests

- Questions can be categorized according to topic, types, etc.
- Provision can be created for difficulty levels of items.
- Tests can be compiled with questions

from different topics.

- A code number is generated for each question according to topic and this code is used to search for and select questions.
- Questions can be converted / added to the databank.
- Tests can be created on a random basis per student.
- The system provides scope for automatic addition of the marks allocated in each question to determine the total marks and the results for the test.

● Question types

- Multiple Choice, Multiple Response, Information page, Fill-in the blanks, Hot-Spot, Matching, Numeric, Calculated (questions are randomly created according to set parameters), Free format.
- Other essential requirements:
 - Graphic(s), Sound, Video, Animations can be included as part of a question.
 - Scoring, negative marking should be possible in all the question types.
 - Preview of a question is available while setting up questions.

● Control mechanisms in the test

- The sequence of questions can be randomized.
- The System allows jumping to specific questions based on the previous answer.
- The options per question can be randomized.
- The system limits the number of times a student can write a test.

- Students can navigate within a test (i.e. backwards and forwards).
- Students can be forced to go through all the questions at least once before exiting.
- Students can be allowed to exit the test before completing all the questions.

● Feedback

- Can be set on/off.
- Customized feedback per question/test.
- The system indicates what the student answered as well as the correct answer.
- Score per question can be displayed in the feedback.

● Stability and Speed

- The online examination system is stable while setting up a test.
- Answers can be saved in real time (if a power failure occurs the answers must be saved up to that point).
- The speed of delivery of test from the server to work station is acceptable.
- The speed for presenting each question per work station is acceptable.
- The speed for presenting videos and graphics per work station is acceptable.

● Security

- Only registered students are allowed to access a test on stipulated times
- The test can be made available on specific dates and times.
- The login logoff time per student is available.
- The online examination system can limit logins to a specific subnet.

● Reporting

- The results on student performance can be obtained in terms of results per topic per student and the time taken by the individual student as well as the average time to complete the test.
- The report per question includes difficulty-value of a question, Discrimination index, Standard deviation, Graphical presentation of results.

The online assessment and evaluation system eliminates the memorization and question spotting, reduces pre-examination anxiety and promotes quality answers. It increases the clarity of the requirements of the course. Unlike in a conventional examination the students are forced to study all areas of the course. However, high and sustained levels of anxiety, dominance of the subject during the take home period, student competition for library books and increased likelihood of students getting expert help are some of the challenges to be addressed.

5.0 Conclusion

This student-centric learning model challenges teachers to use descriptive language carefully in their written and verbal comments on students' work. Teachers must develop dialogues with their students that foster personal and professional growth. Obviously, the teacher must be caring and honest while providing constructive feedback that helps the learner have a clear picture of academic work. Critics of alternative assessment techniques raise legitimate concerns about excessive

administrative time to prepare and grade assignments. Yet, alternative assessments offer teachers unique opportunities to promote relevant work that encourages academic achievement and individualizes the educational process. It is important to help both young and experienced teachers become more familiar with alternative assessments through classes, workshops and other professional development activities.

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ANNEXURE - 1

Statistical Analysis of the internal assessment test:

Subject : Industrial Ergonomics			
Class: II Semester M.Tech.			
Max. Marks : 50			
Sl. No.	Regular Test1	Online Test1	Online Test2
1	42	53	41
2	38	39	43
3	39	36	37
4	40	38	42
5	28	26	32
6	35	38	37
7	46	42	45
8	39	30	37
9	21	27	30
10	41	43	43
11	40	35	38
12	36	38	45
13	40	36	41
14	28	29	28
15	47	43	46
16	33	38	40
17	34	29	37
Avg Marks	36.88	35.41	38.94
Std. Dev.	6.44	5.26	5.08

