

# ICT IN ASSESSMENT



## INTRODUCTION

ICT in Assessment discusses about the basics of assessment practices and explores how various technology tools can be integrated effectively for assessing student learning. The concept map below gives an overview of how ICT can be used for assessment. Assessment is the process of identifying, gathering and interpreting information about students' learning. Assessment involves using wide variety of methods and tools to evaluate, measure, and document the student learning. Assessment basically helps one to improve learning and also set direction for ongoing teaching and learning process.

## OBJECTIVE

- revise the basic concepts related to assessment
- explain the role of ICT in assessment
- explain the concept of computer assisted and computer adaptive testing
- list various technology tools and possibilities for assessment of student learning

- design and create digital assessment portfolio
- create tests/ quizzes/rubrics using online and offline software tools
- explore various digital online and offline assessment alternatives available
- describe the current and future trends in technology based assessment practices

## Types of Assessment

Assessment can be classified in to various types or approaches based on the purpose for which it is designed. It can be classified as follows:

**Formative Assessment:** Formative assessment provides feedback and information during the instructional process, while learning is taking place, and while learning is occurring.

**Summative Assessment:** Summative assessment takes place after the learning has been completed and provides information and feedback that sums up the teaching and learning process.

**Diagnostic Assessment:** Diagnostic assessment can help you identify your students' current knowledge of a subject, their skill sets and capabilities, and to clarify misconceptions before teaching takes place. Knowing students' strengths and weaknesses can help you better plan what to teach and how to teach it.

**Authentic Assessment:** The term **authentic assessment** describes the multiple forms of assessment that reflect student learning, achievement, motivation, and attitudes on instructionally relevant classroom activities. It Emphasizes what students know, rather than what they do not know or requires students to develop responses instead of selecting them from predetermined options. An **authentic assessment** usually includes a task for students to perform and a rubric by which their performance on the task will be evaluated.

**Performance Assessment:** Performance assessment is one which requires students to demonstrate that they have mastered specific skills and competencies by performing or producing something.

## **ROLE OF ICT IN ASSESSMENT**

Technology has a vital role to play in effective and efficient assessment of learning. Modern technology offers educators a variety of new tools that can be used in the classroom. Technology can help teachers assess their students' learning as well as their performance in the classroom. Use of ICT in assessment involves the use of digital devices to assist in the construction, delivery, storage or reporting of student assessment tasks, responses, grades or feedback.

Teachers can use computers to construct their assessment tasks, to deliver these tasks to relevant students and to record and provide feedback and grades to these students. Computers can also be used to analysis students' responses, both to provide feedback to the student on the quality and relevance of their response, as well as to provide feedback to the teacher on whether the task can differentiate between students with different abilities. ICT based assessment can be used to test many different capabilities and skills that are developed by students. There are only a few tasks that might not be suitable for completing and recording electronically, but the number of such tasks is rapidly diminishing as technology becomes more sophisticated and widespread. In many disciplines laboratory equipment can be manipulated remotely and students can undertake real time physical performances that are able to be recorded and used for assessment purposes. We are quickly approaching the stage where our imaginations will be the limiting factor in designing e-assessment tasks.

Christine, R. (2013) identified two conceptually different approaches to assessing Key Competencies using ICT. On the one hand, Computer-Based Assessment (CBA) approaches have been employed for more than two decades and now go beyond simple multiple choice test formats. With this new "Generation Re-Invention" or "transformative" testing, questions are increasingly integrated into more complex and authentic problem contexts, so that the full range of Key Competencies can be assessed. Additionally, due to technological advances, a wider range of answer formats, including free text and speech, can be automatically scored.

On the other hand, technology-enhanced learning environments offer a promising avenue for embedded assessment of the more complex and behavioral dimensions of Key Competencies, based on Learning Analytics. Many of the currently available technology-enhanced learning environments, tools and systems recreate learning situations which require complex

thinking, problem-solving and collaboration strategies and thus allow for the development of generic skills. Some of these environments allow learners and teachers to assess performance, understand mistakes and learn from them.

**Computer Assisted Assessment (CAA):** Computer-assisted assessment refers to the use of computers to assess students learning and performance. Computer-assisted assessment is a term that covers all forms of assessments, whether summative or formative, delivered with the help of computers. This covers both assessments delivered on computer, either online or offline, and those that are marked with the aid of computers, such as those using Optical Mark Reading (OMR).

### **Advantages**

- Computer assisted testing is more likely to be objective testing; testing that can be marked objectively and thus offers high reliability
- The benefit is that the tests can be marked quickly and easily, and adapted to meet a wide range of learning outcome.

### **Disadvantages**

- Construction of good objective tests requires skill and practice and so is initially time consuming;
- Hardware and software must be carefully monitored to avoid failure during examinations;
- Students require adequate IT skills and experience of the assessment type.

### **Computer Adaptive Testing**

One of the recent advancements in assessment is the design and use of computer-adaptive tests, which add a great deal of efficiency to the testing process. Depending on the student's responses, the software will automatically adjust the level of difficulty of the questions it poses (after a

number of correct answers, it will move on to harder items; too many incorrect responses, and it will move back to easier ones), quickly zeroing in on student's level of mastery of the given material.

There are five technical components in building a CAT.

1. Calibrated item pool
2. Starting point or entry level
3. Item selection algorithm
4. Scoring procedure
5. Termination criterion

## **Advantages**

- Adaptive tests can provide uniformly precise scores for most test-takers.
- An adaptive test can typically be shortened by 50% and still maintain a higher level of precision than a fixed version.
- This translates into a time savings for the test-taker.
- Test-takers do not waste their time attempting items that are too hard or trivially easy.
- Like any computer-based test, adaptive tests may show results immediately after testing.

## **Disadvantages**

- The first issue encountered in CAT is the calibration of the item pool.
- Although adaptive tests have exposure control algorithms to prevent overuse of a few items, the exposure conditioned upon ability is often not controlled