

# Interconnecting Teaching and Learning, Assessment, Measurement and Evaluation

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## Abstract

Decades of research evidence have consistently suggested teachers are most important factors in schools related to students learning and achievement. Being taught by an effective teacher has important consequences for students and academic outcomes. The achievement and academic outcomes of students depends upon the knowledge of measurement, assessment and evaluation techniques used by teachers. This articles aims to explore what is understood by the term measurement, assessment and evaluation and to provide a comprehensive assimilation of available information. The author reviews the key differences and common features of measurement, assessment and evaluation. Yet, it seems that understanding the differences between measurement, assessment and evaluation is fundamental to the knowledgebase of professional teaching and effective teaching.

**Key words: Teaching, Learning, Measurement, Assessment, Evaluation.**

We measure distance, access learning and evaluate results in terms of some set of criteria. These terms are closely connected but simultaneously we have to understand them separately.

## INTRODUCTION

In modern times measurement has become a very common feature in everyday life and activities of man. In other words, measurement encompasses almost every area of human life. It starts from birth to death. When a baby is born, time is recorded; weight is measured as well as height.

Therefore measurement is nothing like but comparing an unknown quantities with that of known quantity which may be called as a unit. Here meter, kilogram, liter, etc. are units of measurement. Such measuring devices are used in natural Sciences. According to Campbell, measurement is the assignment of numerals to object, pressure or events reference according to rules. Till 19th century, people believed that height, weight, age, length, breadth depth can only be measured. Psychologists and educationist made a great deal of attempts to measure mental abilities but could not yield any good result. When their attempts failed to find out units of mental measurement, they expressed emphatically that human ability cannot be measured properly. But it was El Thorndike who provided a ray of hope by saying, anything that exists, it exists in some quantity and it is capable of being measured". It implies that anything that exists in some quantity can be measured. As such mental ability like intelligence interest, aptitude, attitude etc. can be measured. For mental measurement units are different from that of physical measurement.

## Kinds of measurement

Broadly speaking there are three types of measurements namely, (i) Direct measurement (ii) Indirect measurement and iii) Relative measurement. When we measure weight, height, length, breadth volume etc of anything, we directly measure with a standard unit like kg, meter, etc. These are the cases of direct measures.

These are accurate and exact if tools used are valid. Sometimes, no instruments are available to measure a phenomenon directly, yet we measure but indirectly. Suppose we want to know the quantity of heat available in substance. At first we measure the temperature of the substance with the help of thermometer and then calculate the heat contained in the substance. This is indirect measurement but to measure intelligence, interest, attitude or aptitude of a child, we give him some psychological tests concerning the trails and compare the scores with some norms. The psychological and educational measurements are the examples of relative measurement.

### **Differences between Mental and Physical Measurement**

- Measurement in physical science is absolute but measurement in behavioral science (mental ability) is relative.
- Unit of measurement in physical science is referred to zero but in mental measurement, units of measurement are derived as there are no definite or specific units.
- Physical measurement is complete in itself but mental level of individuals cannot be measured fully.
- Physical measurement is objective but mental measurement is subjective and relative. However, mental measurement also tries to make it objective and valid.
- Scale of measurement used in physical science is mostly ratio scale, whereas nominal, ordinal and interval scales are used in mental measurement.

There is zero point in physical measurement but there is no zero point in mental measurement, for example, a student securing zero in mathematics test cannot be said that he doesn't possess any knowledge of the said subject.

### **Nature of Educational Measurement**

Educational measurement is concerned with measuring educational, psychological and sociological attributes. In the measurement process, numbers are assigned according to certain rules. A number is numeral which gives some quantitative meaning. But the measurer does not give a number or score of his own choice but according to certain determined, fixed and explicit rules. In case of measurement of physical objects, assigning numerals like meter, kg, litre, etc are specific, clear and explicit. But in measuring educational, psychological and sociological attributes, rules of measurement are vague, less-explicit and ambiguous in comparison with physical measurement.

- Measurement in education is concerned with certain attributes, traits, futures and constructs. These traits and attributes of a person are measured but not the person himself. An example may clear this; measurement is done to assess intelligence, achievement, attitude, aptitude, interest, etc of a person but not the person himself.
- Educational measurement is qualitative measurement but it can also be expressed in terms of quantitative value. For example, a score in an examination, IQ in an intelligence test, etc. are quantitative expression of measurement in education.
- Scores in educational measurements are selective and implied. There is no absolute zero-point in educational and psychological measurement. Zero score of a testee in an achievement test, intelligence test, interest inventory or attitude scale does not indicate that the testee or individual has no knowledge of and ability in that area.

## **Concept of Assessment**

Throughout the world, most educational system finds it appropriate to record students achievement in some way, whether with a number, a letter code, or a comment such as satisfactory or needs improvement.

Assessment is a process by which facts are obtained to some known objective. Good assessment is a broad term that includes testing. A test is a distinct form of assessment, thus, all tests are assessment, but not all assessments are tests. We assess verbal and quantitative skills through different instruments whether covert or overt. Assessment is mostly connected to some goal for which it is designed. Assessment of skill attainment is rather straightforward. Either the skill exists at some acceptable level or it does not. Skills are readily demonstrable.

The word of Lenin and Gronlund, "Assessment is a term that includes a lot of procedures used to gain information related to students learning and formation of some value judgments about learning processes."

## **Functions of assessment:**

The following are the main functions of assessment process:

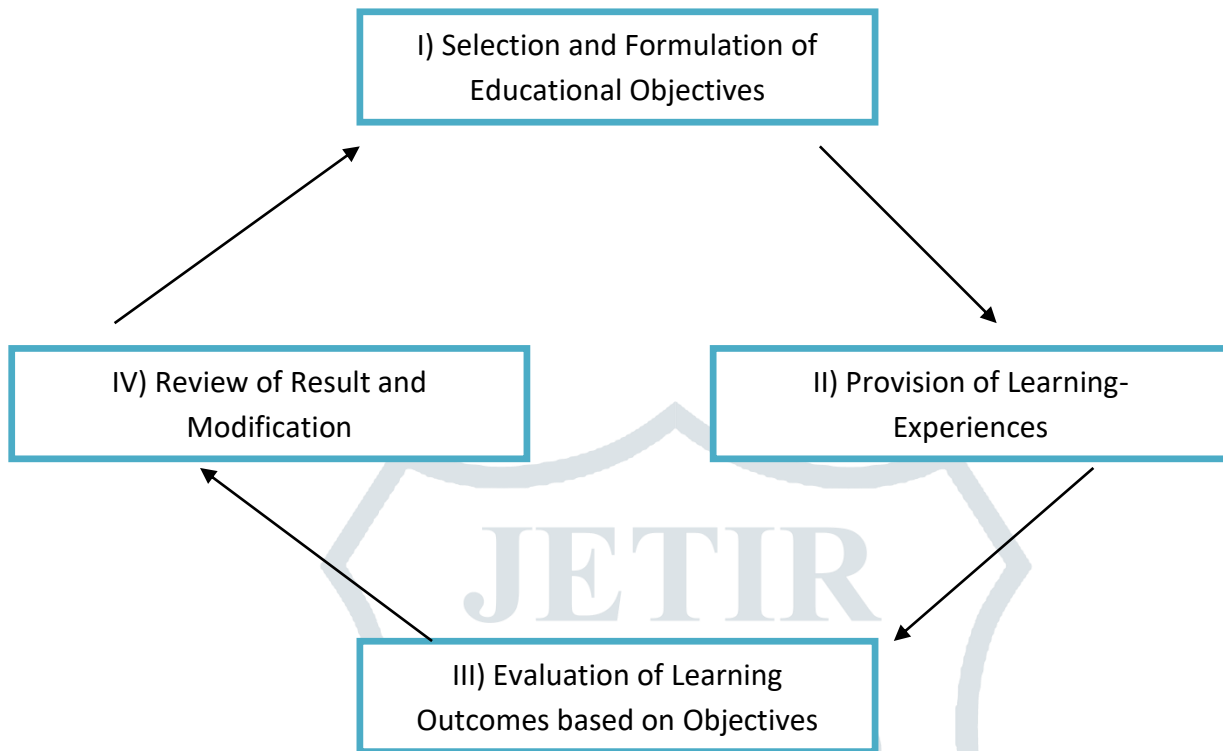
- It ascertains that how far learning objectives could be achieved.
- It diagnoses the weakness of instructional procedures and provides the basic of remediation of learning weakness.
- It provides the empirical evidences about the effectiveness of teaching strategies, tactics and aids and suggests some modification and improvement.
- It gives refreshment and feedback to teacher and students.
- It helps in development.

## **Meaning of Evaluation**

The word "Evaluation" means value judgment or an observation. When we use this term in education, it implies to evaluate the teaching of the teacher and to inform him whether the behavioral changes occurred in the pupils are with reference to predetermined learning objectives or not. If suitable desirable change occurred then up to what level and if not then what steps should be taken to achieve the predetermined learning objectives or not. Thus evaluation is the scheme of collecting evidences of behavioral changes and finding the direction and extends of such things. This necessitates a clear understanding of the objectives of teaching, both for the purpose of providing worthwhile learning situations and for testing.

In traditional examination one objective, i.e. acquisition of knowledge is tested .Other objectives remain or go untested. But goal of education (to bring desirable change in student's behavior) is not tested. The behavioral changes may occur in the form of knowledge understanding, skill, interest, attitude etc. In other words, it is desirable to access all the learning outcomes. These are: How do the children think? What do the children know? How do they feel? How do they do? When we want to answer the above questions, evaluation is must. Evaluation in education is based on aims and objectives of subject matter. Evaluation is based on teaching-learning process which is continuous. The teaching-learning process model can provide a clear picture of evaluation process.

## Teaching-Learning Process Model



### Objectives of Evaluation:

- To prepare remedial measures for revising the weaknesses and difficulties of the students.
- To improve the testing system of the subject.
- To provide basis for admission not only in the schools and colleges but also to the institutions of vocational training and business concerns.
- To serve as a method of improvement.
- To relate measurement to the goals of the instructional programs.
- To aid pupils-teacher planning.
- To appraise the status of and changes in pupils' behavior.
- To strengthen motivation.
- To justify the school program to the community.
- To judge the efficacy of units and unit organization.
- To help the teachers in directing the intellect and emotions of his pupils in such a manner that they will not possess undesirable traits like narrow prejudice, selfish motive, jealousy, and ill-will etc.

### Need and Importance of Evaluation

- Helps in clarifying objectives.
- Provides knowledge about progress of the students.
- Basis of guidance.
- Helps in classification of the students.

- Basis of admission.
- Basis of planning and education.
- Helps in providing incentives.
- Helps in testing the efficiency of a teacher.
- Helps in awarding scholarships.
- Helps in bringing improvement in the school programme.
- Promotion of better learning.
- Helps in bringing changes in curriculum.

### **Conclusion:**

Thus, assessment is integrated with the entire task of education and not only with examination and measurement. Assessment depends upon measurement but is not synonymous with it. Measurement is a quantitative determination of how much an individual's performance have been, while assessment is a qualitative judgment of how good or how satisfactory an individual's performance has been. Evaluations are usually done in the context of comparisons between what was intended and what was obtained. All these three terms are closely connected with each other but simultaneously we have to understand them separately.

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