

## **Introduction to Test Item Classifications**

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### **Abstract**

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*Parents complain because their child did not do well on a test. Many students also have similar complaints and, in many cases, their complaints are valid. Some teachers make poor tests. Even when they use tests that accompany a textbook the tests can be poorly constructed or the test items may be used to measure the wrong learning objectives. Some areas of concern where teacher made tests are constructed include: ambiguous questions, excessive wording, lack of appropriate emphasis, and use of inappropriate item formats to name a few.*

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**Key Words:** Selection and supply type test items, learning, formative and summative evaluation,

The authors have children who have come home complaining about a teacher's test. An example of a complain is the teacher had six questions on the test that was not covered in the class and was covered in the text by one paragraph. Worse is when the teacher requires a 250 word essay on \_\_\_\_\_ when there is one paragraph in text and four notes during class.

The following is an introductory primer on test items and when to use them and their value to everyone concerned.

### **Types of Test Items**

There are two types of test questions. The test questions are divided into selection and supply based on how the test taker answers the question.

**Selection type (Objective):** Answers to the questions are supplied and the person taking the test must chose the correct one. Examples of selection type questions are \_multiple choice, matching, true-false or alternative-response, and interpretive exercise.

Selection type test item value is due to measuring factual information and understanding, sampling broadly, eliminating bluffing and writing skill, easy to score, scoring is objective, and pinpoints learning errors.

**Supply type (Constructed, Subjective):** The person taking the test must supply the answer to the test question. These type test items in completion, short answer, and essay test questions. Essay type questions are divided into two categories: restricted response and extended response (1-5, 2018).

**Restricted response (short) essay questions** provide the ability to explain cause-effect relationships, describe applications of principles, present relevant arguments, formulate tenable hypotheses and valid conclusions, state necessary assumptions, describe the limitations of data, and explain methods and procedures.

**Extended response essay questions** provide the ability to produce, organize, and express ideas; integrate learning from different content areas; and evaluate the worth of ideas. Extended response is best used for higher level cognitive thinking. Due to the length required to answer an extended response essay question only a few questions can be asked in an allotted time. Supply type test item value measures factual information, understanding, and synthesis. They are relatively easy to construct, eliminates blind guessing, and encourages originality. Essay tests are appropriate when the group to be tested is small and the test is not to be reused, you wish to encourage and reward the development of student skill in writing and/or you are more interested in exploring the student’s attitudes than in measuring his/her achievement (6-8, 2018).

Objective tests are appropriate when the group to be tested is large and the test may be reused, highly reliable scores must be obtained as efficiently as possible and/or impartiality of evaluation, fairness, and freedom from possible test scoring influences are essential. Either essay or objective tests can be used to, measure almost any important educational achievement a written test can measure, test understanding and ability to apply principles, test ability to think critically and/or test ability to solve problems (9, 2018).

Figure 1 shows what type of test items to use when assessing one of the levels of Bloom’s taxonomy:

TYPE OF EXAMINATION ITEM	KNOWLEDGE	COMPREHENSION	APPLICATION	ANALYSIS	SYNTHESIS	EVALUATION
MULTIPLE CHOICE						
ESSAY						
MATCHING						
SHORT ANSWER						
TRUE-FALSE						

Figure 1: Types of test items/Bloom’s (Notar, 2003)

While Figure 1 compares Bloom with test items Figure 2 compares test items characteristics with item types.

### **Comparison of Test Item Characteristics between Selection and Supply Type Items**

Test Item Characteristics	Selection Test Items	Supply Test Item (Short Answer)	Supply Test Item (Essay)
Measures factual information	Yes	Yes	Yes
Measures understanding	Yes	No	Yes
Measures synthesis	No	No	Yes
Easy to Construct	No	Yes	Yes
Samples broadly	Yes	Yes	No
Eliminates bluffing	Yes	No	No
Eliminates writing skill	Yes	No	No
Eliminates blind guessing	No	Yes	Yes
Easy to Score	Yes	No	No
Scoring is objective	Yes	No	No
Pinpoints learning errors	Yes	Yes	No
Encourages originality	No	No	Yes

Figure 2: Comparison of test item characteristics between selection and supply items.

Knowledge is best measured through the use of objective tests, but skill development is best measured with performance exercises. In addition, higher levels of thinking, as well as critical thinking, are better indicated on essay tests. Objective questions can test knowledge and to some extent understanding and applying. But subjective exams can test more levels on Bloom's taxonomy (analyze, evaluate).

#### **Formative (Informal) Test**

A better use of the criterion test is for formative evaluation. Formative evaluation is used to identify learning weaknesses prior to completion of a lesson, module, unit. Therefore, formative evaluation occurs frequently during instruction with the aim of testing enabling objectives before testing the terminal learning objectives. Formative evaluation is a major learning activity in an instructional system. The use of practice exercises and self-tests with student feedback sheets are examples of formative evaluation. In addition to being used as a corrective feedback loop to reinforce the appropriate response it also serves to extinguish incorrect responses and becomes a developmental tool.

Formative evaluations are procedures carried out as the instruction progresses. Formative assessments are typically short, focused exercises. They are aimed at skill development at a given point in a specific unit of instruction to verify that students are keeping pace with the concept and skills presented by instruction. Formative assessments of all kinds inform both teacher and student by providing periodic feedback. They indicate if the class or an individual student has missed a point(s) in the concept under study. They advise instructors how to pace teaching and learning activities and indicate where difficulties may be occurring.

*Formative uses:*

- A. Size up of students at beginning of year.
- B. Identifying individual student's learning needs
- C. Identifying group learning needs
- D. Designing instructional materials and activities.

#### **Summative (Formal) Evaluations**

As teachers, administrators, and counselors you may examine tests on the basis of format, intent, content, and condition. Tests which are given at the end of large blocks of instruction are generally summative in nature. They are used to evaluate student performance and usually occur infrequently.

These tests have the disadvantage of identifying problems when it's too late to resolve them. Objectives which were not mastered may be identified without sufficient time left in the course to re-learn them. Also, if the instruction is cumulative all of the following modules may be failed because of failure of a previous module. Summative tests may be criterion tests, but when used in this fashion their ability is minimized.

Summative uses:

- A. Assigning grades
- B. Placement
- C. Self-evaluation (Akpan, Notar, & Padgett, 2012; 10-15, 2018).

Figure 3 provides examples of formative and summative assessment. As stated above formative assessments are corrected but not graded. Summative assessments count toward grades.

Figure 3: Examples of Formative and Summative Assessments (Appatachia Educational Laboratory (1999).

Formative Assessments	Summative Assessments
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**TABLE 3.1** *Examples of Formative and Summative Assessment*

Formative Assessment	Summative Assessment
(ongoing) usually assesses factual information, concepts, and discrete skills, which are necessary to build understanding	(summary) tends to involve more analysis, synthesis, or evaluation of information in order to make judgments, form opinions, explain concepts
<ul style="list-style-type: none"> <li>• Mastery checklists of skills acquired</li> <li>• Quick quizzes</li> <li>• Journal entries</li> <li>• Homework practice</li> <li>• Oral questions</li> <li>• Observation (individual and group)</li> <li>• Daily or weekly rubric for social interaction</li> </ul>	<ul style="list-style-type: none"> <li>• Research paper</li> <li>• Projects</li> <li>• Debate</li> <li>• Position paper</li> <li>• Persuasive paper</li> <li>• Collage</li> <li>• Oral presentation/speech</li> <li>• Chapter or unit test (especially essay tests)</li> </ul> Many of these are referred to as authentic assessments.

**Characteristics of Sizing-Up Assessment**

1. Sizing up is done at the start of the school year. Most teachers can describe the personal, social, and academic characteristics of each pupil and the class as a whole after the first 2 weeks of school.
2. Sizing up is pupil-centered. Much of the information about pupils and their characteristics are the focus of assessment.

**Group Evaluation**

Group work often is evaluated according to results, products, or presentations. In addition, teachers sometimes attempt to evaluate each group on its ability to cooperate, stay on task, fulfill individual responsibilities, and convey positive attitudes when groups or committees were meeting. Cooperative learning, for example, tends to encourage students to help one another meet their responsibilities. Stronger students often tutor weaker students in the various aspects of the assignment.

In a cooperative learning activity, the teacher might evaluate the performance of a randomly selected group member; therefore, every student must be prepared to represent the group as a whole. Evaluation of group panel or committee reports can provide assessment difficulties. Some teachers give individual grades on oral performance, and others also give a group grade. To more fairly judge individual contributions to the group's presentation, some mentors require written material and reports from each student to help reveal the amount and quality of individual efforts. Basics of any group assessment must include:

Assess individual, as well as group, learning and performance.

Assess process as well as product.

Make your assessment criteria and grading scheme clear.

Team evaluations: each member of the team evaluates the dynamics of the team as a whole.

Peer evaluations: each team member evaluates the contributions of his/her teammates.

Self-evaluations: each team member documents and evaluates his own contributions to the team (16-18, 2018).

## Conclusion

Teachers, administrators, and counselors must use both summative and formative types of tests. However, the more formative testing is used the better the chances that the students will do well on the summative tests (Notar, & Allanson. (2018).

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