

Accommodator

A student whose learning style relates best to the concrete world of experience. One who prefers order that is non-linear, multifaceted, with broad guidelines.

Accuracy

The extent to which an evaluation is truthful or valid in what it says about a program, project, or material. See validity.

Achievement Assessment

All forms of assessment which attempt to document student development, growth or new competency. Nearly all assessment in the classroom is of this type. Both criterions referenced and norm-referenced evaluation are concerned with this type of assessment.

Acronym

Sets of letters that when taken in order form a word; a composition.

Activity Learning

Essentially concerned with actively involving the trainee in the learning process during 'practice' sessions. In more conventional methods the trainee has to practice operations that have already been explained to him. Part of the activity in activity learning is for the trainee to find out for himself how the task is actually done. This is why he is given progressively more difficult tasks.

Adult

Normally one who has completed formal schooling or interrupted it at some stage in the normal progression through the school system. In most cases, therefore, adults will be over eighteen years of age and will have assumed responsibility for themselves.

Adult Basic Education

Education aimed at the acquisition of primary knowledge and skills necessary to life in society.

Adult Development

Sequence of continuous change and growth through the various stages of adulthood.

Adult Education

Any planned and organized activity provided by an institution or other social instrumentality that is intended specifically to assist an adult to learn and which is under the immediate and continuing supervision of an instructional agent who manages the conditions of learning objectives

Adult Educator

One who educates or organizes the education of adults; a person engaged in the study of adult education.

Adult Learning

The acquiring of new knowledge and skills, the development of new attitudes by persons who have reached mature intellectual, physical and social development; the processes by which adults acquire new knowledge and skills, develop new attitudes and the factors – intellectual, biological and social – which influence these processes, with particular reference to those factors which differ from the factors influencing the learning of children.

Advance Organizer

A general and inclusive statement which sets the stage for learning more specific and detailed information.

Advisory Committee

A group of persons selected to offer advice and counsel regarding programs to an educational institution.

Affective

Having to do with a person's feelings or attitudes.

Affective Domain

Learning that focuses changing a learner's value and belief system; the psychological concept that refers to a person's feelings, emotions, or degree of acceptance or rejection of some object.

Affective Learning

That learning a person acquires within his or her emotional makeup. It focuses directly on feeling and their development within an individual human being.

Agency Goals

The third factor that we must consider during all of program planning is the mission or mandate of the institution, agency or company for whom we work.

Analysis

The breakdown of skills or knowledge into constituent elements or parts such that the relative hierarchy is made clear and/or relationships are made explicit. See also Task Analysis, Task Listing, Competency Analysis Profile and Dacum Chart

Andragogy

The art and science of helping students learn. Five issues to be considered:

- (1) Letting learners know why something is important to learn - the need to know.
- (2) Showing learners how to direct themselves through information - the need to be self directing.
- (3) Relating the topic to the learner's experiences - greater volume and quality of experience.
- (4) People will not learn until ready and motivated to learn - readiness to learn.
- (5) A need to have a life centered, task centered, or problem centered orientation - often this requires helping them overcome inhibitions, behaviours, and beliefs about learning.

Anonymity

The researcher cannot identify a given response with a given respondent, e.g. mail survey in which no identification numbers are put on the questionnaires before their return to the research office.

Application

The use of rules and principles to solve problems presented in situations which are new or unfamiliar to the student; the ability to apply concepts and principles to new situations, solve problems, apply laws and theories to various situations.

Apprentice

A person who enters into a contractual agreement with an employer to learn a trade requiring a specific length of employment and which provides a program of practical experience and related technical instruction. Legislation frequently sets a minimum age limit for entry, sixteen years of age being the most common.

Apprenticeship

- (a) A training method in which a relationship is established whereby the learner acquires knowledge and skills through direct participation in learning under immediate personal supervision in a situation that approximates to the conditions under which the knowledge and skills will be used; a practice which a person learns a skilled or semi-skilled occupation requiring two or more years of supervised work experience on the job, supplemented by related classroom instruction.
- (b) A systematic program of on-the-job and related classroom training designed to produce a fully qualified journeyman tradesman. An employer undertakes by contract to employ and personally train an apprentice or ensures that he is trained under the supervision of a qualified and competent journeyman.
- (c) An individual method employed when the nature of the learning task is such that skills and knowledge can be acquired best through practice under instructional supervision. These methods are used extensively in vocational areas and in certain professions.
- (d) In this method a relationship is established so that an individual acquires knowledge and skills through direct participation in a situation similar to that in which such integrated behaviour ultimately will apply.

Apprenticeship Training

- (a) An Organized system for providing people with the manipulative skills and technical or theoretical knowledge needed for competent performance in skilled occupations. The program usually involves cooperation among school, labour, management and government, since apprentices learn the skills of the tradesman through on-the-job work experiences and the related information in the classroom. The minimum terms and conditions of apprenticeship are regulated by statutes or agreements
- (b) A form of organized training leading to journeyman status, which involves a written or verbal contractual agreement between employee and employer, through which the employee follows an organized schedule of on-the-job experience and technical and related instruction in a skilled occupation

Approach Behaviour

Observable action (behaviour) that signifies a favourable feeling or desire for an object, event, or activity. A behaviour that brings one closer to, or in more frequent contact with, an object, event or activity. Opposite of avoidance behaviour.

Aptitude Assessment

Measurement which attempts to predict future performance in some form of activity, vocation or learning. This type of assessment is frequently used by counsellors and psychologists to assist people in recognizing their strengths and limitations select a career or field of endeavour.

Aptitude Tests

Tests designed to identify aptitudes for guidance purposes rather than to measure achievement.

Area of Evaluation

In evaluation, refers to the field of study, e.g. education, health care, law enforcement.

Areas of Competence

Grouping of skills into categories.

Assessment

Essentially a measurement process of the learning that has either taken place or can take place. Usually measured against stated learning outcomes; to measure or provide feedback about a performance or product.

Assessment Instrument

A test, checklist, or rating guide that is used to measure learner competency.

Assimilator

Student with a learning style that relates best to the world of ideas. One who prefers structure, sequence and logic.

Assembly

A specifically structured situation for learning involving, generally a fairly large number of people for a single independent or series of independent or sequentially ordered events in which there is limited participation and the major control of the learning situation is held by the agent.

Attend

- To differentiate aspects of a given stimulus from adjacent impressions. To selectively act upon stimulation from the environment in such a way that certain features are perceived.
- To pay attention; the first stage in the learning process.

Attitude

- A learned tendency that influences the choice of personal action towards things, events or persons. This tendency is composed of knowledge and feelings of like or dislike which combine to produce the readiness to move forward or away from some object.
- Learned disposition that influences the choice of personal action toward classes of things, events or persons.
- The perspective a person has on particular events, actions, proposal or statements. One's attitude governs to quite an extent one's tendency to do or not do particular activities. Because it is fairly deep-seated it is not subject to easy change.

Attitudes

Includes things such as work place safety, nursing bedside manner, telephone courtesy, cooperation with co-workers, and so on.

Audience Reaction Team

A reaction panel of resource persons or representatives of a group who discuss a presentation. The goal is to stimulate dialogue between the speaker and the reaction panel for the purpose of gaining information and clarifying issues.

Audio-Tape

Magnetic recording tape which records sound.

Audio Tutorial

Students work individually at their own pace using units of study programmed on audio tape. The taped instructions may direct him to listen and take notes on a brief lecture, prepare and carry out experiments, observe and examine specimens or engage in other learning activities. Instructors are left free for individual and group tutorials.

Authentic Assessment

This type of assessment stresses the practical application of knowledge to perform tasks in real world settings. Most often, authentic assessment is used to describe assessment that asks for the performance of skills required on the job or some other applied context.

Avoidance Behaviour

Behaviour that signifies an unfavourable feeling or desire for an object, event, or activity. A behaviour that takes one further from, or in less frequent contact with an object, event or activity. Opposite of approach behaviour.

Base Groups

Long term cooperative learning groups with stable membership. The group members provide member support so that all can succeed.

Behaviour

An action or way of acting that may be observed in a particular individual or group of people. Observable (visible, audible) actions.

Behaviourism

Behaviourists concern themselves with the observables of behaviour, namely stimulus and responses. Strict behaviouristic doctrine avoids any speculation about what is going on in the brain

Behaviour Modification

Methods of influencing behaviour, mainly through application of reinforcement and modeling principles.

Bell Curve

Refers to the bell-shaped curve that represents a normal distribution pattern on a statistical graph. In education it is used to impose a normal distribution on marks received by learners taking tests.

Bias

A consistent alignment with one point of view.

Bloom's Taxonomy

A classification system that shows various levels of learning in each of three domains: cognitive, affective, and psychomotor.

Brainstorming

(a) Technique designed to increase creativity and identical fluency in group problem solving by unstructured discussion. Participants are encouraged to contribute relevant ideas freely without critical examination, which comes at a later stage. By this method the choice of solutions is maximized.

(b) A teaching technique in which members of a group supply solutions to a problem rapidly without comment or criticism so as not to limit creative output. After the list is completed or the time allotted is up, the suggested solutions are evaluated by the group.

(c) A method of small group discussion with about six to ten members under the leadership of a chairman, which aims at the creative solution of organizational problems through the use of open ended questions. Generally it proves successful, since the members are usually selected on the basis of education and/or experience of wide range; placed in permissive environment that not only encourages and stimulates, but also depends on quick, spontaneous and imaginative participation; and not criticized or otherwise limited in their expression or contribution.

Brookfield, Stephen

An educator who states that critical thinking is not just an abstract notion, but rather an active process in which all students should engage.

Capability

Single discrete skills which represent the level of instructional outcome at which teaching actually occurs. It is at this level where instructional techniques and resources are selected.

Career Education

Education designed to promote the individual's career and life development. It is not limited to specifically vocational knowledge and skills, but may include a wide range of studies.

Case Study

Information describing a real life situation is presented to learners, who then analyse the problem and offer solutions.

Certificate

Formal recognition of post-secondary level (college or institute). It is issued by the institution where the education or training was completed.

Class

Any group of learners brought together to achieve specific learning objectives within the framework of a training or education program.

Classroom tests

These are the quizzes, rating guides and other instruments that instructors develop for use in a specific course. These are most appropriate in criterion referenced evaluation

Classroom Management

The teacher's way of establishing a climate for learning, including techniques for preventing and handling student misbehaviour.

Climate for Learning

The total environment in which the learning takes place which includes for example, the attitudes of instructors and learners, the kind of room, learning aids and other facilities, and the mental and physical health of learners.

Clinical Supervision

In education, a process of assisting instructors to improve their instruction. It involves a pre-observation conference between the supervisor and the instructor to specify and agree upon the specific objectives for observation visit, the data collection observation and a post-observation conference to analyse the data collected during the observation and to set goals for future observations.

Coach

A person who instructs, demonstrates, directs, and prompts learners. Generally concerned with methods rather than concepts. There are four coaching roles/styles.

Cognition

The psychological concept that refers to such processes as perceiving, knowing, recognizing, conceptualizing, judging, and reasoning.

Cognitive Domain

Learning that is based on logic, rationality and critical thinking. It proceeds from the mastery of factual information to complex patterns of thought.

Cognitive Strategy

Cognitive strategies involves an individual's abilities to learn, remember, and think; in short, the individual's abilities to manage and to be responsible for his or her own learning. For example, we use cognitive strategies when we read with intent to learn.

Colloquy

A modified panel discussion with both learners and external resource people as participants. A moderator directs the proceedings.

Comprehension

The ability to grasp or understand the meaning of written material. Explains or summarizes material, interprets, translates, generalizes or provides examples.

Computer-Managed Instruction (CMI)

The use of a computer system to manage learning. The computer can be programmed to manage information about learner performance and learning resources options in order to prescribe and control individual lessons for learners. In contrast to Computer Assisted Instruction (CAI) - Instruction a student receives when he or she interacts with a computer with lessons programmed into a computer system.

Conceptual use

Data collected to map the field; used to enlighten; to identify potential evaluands.

Condition

A description of the place, equipment, tools or context under which the learner is expected to perform.

Confidentiality

Researcher is able to identify a given person's response but essentially promises not to do so publicly.

Confluent Outcome

A type of learning that encompasses both the affective and cognitive domains.

Confluent Objectives

Describe in more general terms what the learner should know and be able to perform at the completion of each learning activity. These objectives integrate both cognitive and affective elements in a single objective statement.

Consequences Validity

The degree of confidence that you have in the results of assessment to say that assessment has not negatively affected learning too much.

Construct Validity

The degree of confidence you have in the results of assessment to say that the learner has displayed the value, belief or attitude that you sought to assess. Construct here refers to a psychological construct—behaviour or value for example such as "professionalism" or "enthusiasm".

Constructivist

Constructivist theory posits that learners build new information onto pre-existing notions and modify their understanding in light of new data. In the process, their ideas gain in complexity and power. Constructivist theorists dismiss the idea that students learn by absorbing information through lectures or repeated rote practice.

Contemporary Issues

Students are asked to relate course content to contemporary life by making entries based on relevant ideas and stories collected from media. This type of journal helps learners make connections between courses content and the real world.

Content Validity

The degree of confidence that you have in the results of assessment and evaluation to say that you have assessed the right course content, in an appropriate manner and to sufficient extent.

Continuing Education

(a) A comprehensive term referring to all forms and types of education pursued by those who have left formal education at any point and who entered employment and/or assumed adult responsibilities - however these may be defined in a particular society.
(b) Any extension of opportunities for reading, study and training at the higher education level following completion of, or withdrawal from, full-time school or college programs. This service may be provided by special schools, centers, colleges or institutes, or by separate administrative divisions such as university extension. Continuing education usually emphasizes flexible rather than traditional or academic programs.

Converger

A student with a learning style that relates best to the concrete, hands-on physical world. One who prefers step-by-step sequence and structure.

Cooperative Learning

An arrangement in which students work together to maximize their own and each other's learning. Students work together to achieve shared goals. Involves positive interdependence, face-to-face interaction, individual accountability, interpersonal and small group skill development, and group processing

Course

- (a) A training design incorporating a number of lessons designed to prepare the learner for a new level of capability.
- (b) An educational unit within the curriculum dealing systematically with a particular subject or discipline in prescribed ways: lectures, laboratory work, workshops, etc. A series of such courses (e.g. mathematics, physics and electricity) are thus co-ordinated to form the curriculum.

Course Design

The development of a set of objectives and the selection and organization of instructional material to attain these objectives effectively and efficiently.

Course Outline

A brief description of the objective, contents application of a particular course.

Course Procedures

The written rules by which a course is operated.

Course Profile

A description of the course goals and objectives often in graphic format. See DACUM.

Course Purpose

A general description of what the course is all about. It usually describes major components of the course's content.

Credit System

The system by which educational programs and practical training periods are assigned a specific value. Credits counting towards achievement of the program are obtained upon successful completion of each course or training period compulsory or optional. When credit equivalent to the total value assigned to the program is obtained, recognition is awarded in the form of a certificate, degree or diploma.

Criterion

A description of the standards for judging whether or not the learner has performed successfully.

Criterion Referenced Evaluation

Evaluation that is based on defined standards. These standards are derived from the course content (goals and objectives). A grade or mark is an indication of how well the learner has mastered that particular content.

Critical Thinking

A high level reasoning process used differently in different disciplines. May involve questioning beliefs, probing for assumptions, welcoming diverse opinions, and identifying issues underlying a dispute.

Crystallized Intelligence

Crystallized intelligence is that type of intelligence we use in most problem solving activities as adults. When we read a newspaper and analyze and synthesize ideas from the paper, we are using our crystallized intelligence. This type of intelligence increases as people age provided they are in stimulating environments and they do not suffer from senility or other brain dysfunctions caused by stroke, etc.

Curriculum

- (a) An organized program of both theoretical and practical studies, the successful completion of which is considered necessary to achieve specified educational goals.
- (b) A description of composite of statements about "what is to be learned" by a student in a particular instructional program: a product that states the "intended learning outcomes" that have been selected and ordered.

Curriculum alignment

When we plan for instruction, we must make sure that the objective, the instructional technique and the evaluation technique are in alignment. Example: if the objective is to have students analyse material, to have curriculum alignment, we would have to use something similar to a case study techniques and essay exam if we were to maintain alignment. Using a lecture and true/false test to teach and evaluate whether or not students can analyze material is an example of nonaligned curriculum.

Curriculum Development

The process of defining, organizing, combining and co-ordinating the various courses which form the curricula so that they lead to different levels of knowledge and qualification. Such a process also includes experimentation, evaluation of content and effectiveness, as well as selection of appropriate teaching and learning methods and materials.

Curriculum Development:

Objective Model Founded in behavioural psychology, the objective (or performance) model was outlined by Ralph Tyler in his well-known Tyler Rationale (1949) which describes four stages of curriculum development.

Curriculum Development: Process Model

The process model suggests that education comprises four processes:

- (1) Induction into knowledge
- (2) Initiation into social norms and values
- (3) Training
- (4) Instruction.

Curriculum Development: The Situational Model

The situational model has its roots in the employment of cultural analysis in curriculum planning. The situational model of education involves:

- (1) Analysing society in terms of subsystems (economic, technology, aesthetic).
- (2) Mapping out the kinds of knowledge and experiences that are most appropriate to each subsystem.
- (3) Organizing the knowledge and experience in sequence in the light of psychological theories and using curriculum models.

DACUM Chart

(a) A comprehensive listing of outcomes or competencies in a specific field organized into clusters of like skills and presented in a chart format; synonymous with "job profile" and "skill profile".

(b) An acronym for Developing A Curriculum. It is an approach to occupational analysis that involves bringing a committee of occupational experts together under the leadership of a trained facilitator. They use modified brainstorming techniques to specify in detail the duties and tasks that successful workers in their occupation must perform.

Data

Material gathered during the course of evaluation which serves as the basis for information, discussion, and inference.

de Bono, Edward

An educator and management consultant who developed the theories of Lateral Thinking and the Six Thinking Hats, among others.

Debate

Speakers with opposing views are given equal time to present the reasons for their beliefs. Following the first round of speechmaking, each individual or team is given a time to offer a rebuttal.

Declarative Memory

A term that includes semantic and episodic memory. See those terms in the Glossary.

Degree

A university diploma issued at the conclusion of a specific program at the Bachelor, Masters or Doctorate levels.

Demonstration

A process whereby the instructor performs an activity and students watch. They then imitate what the instructor did with guidance so that they will be able to perform the learning task completely on their own.

Diagnostic Assessment

A very specialized form of assessment that is used to determine the nature and extent of a specific learning problem. If a learner consistently does poorly on quizzes, for example despite his apparent understanding in class, investigation of a possible neurological or other physical cause for the difficulty might be called for.

Diploma

Formal recognition for education completed. It is authorized by the Ministry of Education or Post Secondary Education.

Direct Instruction

Systematic teaching that presents information in small achievable steps. It involves the students and has a consistent plan for checking student understanding.

Discipline

A field of study, for example, mathematics, literature, mechanical, engineering, science, etc.

Discovery Learning

- (a) A heuristic teaching strategy based on the proposition that learning is more effective and enjoyable if students "discover" facts and relationships for themselves.
- (b) A means of teaching which avoids expository instruction. The trainee is presented with tasks which engage him in the search for and selection of clues on how to proceed. The effectiveness of the discovery method depends on the design of these tasks which have two aims: to provide an intrinsic means for unassisted learning and to provide the experience upon which insight into key relationships can be developed.

Discrimination

The capacity of a test item to distinguish between those who know something and those who don't. For example, if there is a clue in the item that any learner can use to deduce the right answer then the item is not able to tell the difference between those who really know the subject and those who have figured out the answer based on an unintended hint.

Distance Education

- (a) The delivery, by a variety of communication modes, of educational programs designed to meet the needs of people who are socially or geographically isolated from traditional learning institutions.
- (b) Education conducted through print, audio or video, without face-to-face contact between teacher and learner. Teaching is done by specially prepared material transmitted to individuals or learning groups. Learner's progress is monitored through written or taped exercises, sent to the teacher, who corrects them and returns them to learners with criticism and advice.

Distributed Practice

Learning a skill by performing it for a short period of time followed by a break for a certain period and then more practice.

Diverger

A student with a learning style that relates best to the world of emotions and feelings. One who prefers order that is non-linear, harmonious and not traditionally structured.

Domains of Learning

Broad categories of learning that are distinguished by the distinct type of mental processes involved.

Domains of Learning

- (a) Most educators recognize three basic domains of learning derived from the work of Benjamin Bloom i) cognitive (what students know), ii) psychomotor (what students will do with their hands, fingers, and other muscles, etc. as a result of what they know), and iii) affective (what values, attitudes, feelings, etc. the students need to bring to their learning and their work).
- (b) Each of these domains represents a hierarchy or progression in levels of learning; for example, in the cognitive domain, from the simple 'recall' or 'recognize' levels to higher levels of 'analysis' and 'evaluation' of information, from performing simple skills in sequence to performing combinations of skills simultaneously.
- (c) Another common taxonomy of domains is found in Gagne's work:
 - (i) verbal information, (iv) motor skills, and
 - (ii) cognitive strategies, (v) affective
 - (iii) intellectual skills,

Double Entry

On the right hand page of a standard notebook, students are asked to keep course notes. On the facing (left hand) page, they are asked to make comments and observations, raise questions, state opposing views about the material noted on the right. Learners are asked to regularly review and add comments or observations.

Electronic

This approach allows learners to share, read and respond to each other's entries. We are using a form of electronic journaling in our current course through the use of the class discussion tool.

Enabling Skills

Statements of skills which a learner must master to meet the performance standards for a particular competency. AKA - Learning Objective.

Episodic Memory

Our life experiences reconstructed over time. Details may change as we age and may not necessarily be accurate.

Epistemology

A study of a theory of the nature and grounds of knowledge especially with reference to its limits and validity; the construction of knowledge.

ERIC (Educational Resources Information Centre)

A worldwide-available information system that helps educational practitioners and researchers through the dissemination of educational research results, practitioner-related materials and other resource information that can be used to develop more effective educational programs. ERIC uses two indexes: i) Resources in Education (RI(E) contains conference speeches, curriculum guides, project reports, etc., and ii) Current Index to Journals in Education (CIJ(E) includes articles from over 750 educational periodicals including those from Canada, the United States, Britain, Australia, and other countries. It abstracts, indexes announces, and provides access to these journal articles. Available on the Internet at the following address:
<http://ericir.syr.edu/index.html>

Evaluand

The thing being measured.

Evaluation

The process of judging the value or worth of something.

Evaluation Plan

A plan for conducting an evaluation; e.g., data collection schedule, values of goals, assessment activities and their values.

Evaluation Plan (Evaluation Strategy)

A comprehensive description of the course goals to be assessed, how that assessment will be done (assessment activities) and the value of those activities in the evaluation process.

Events of Instruction

Together, motivation, guidance, and practice are generally recognized as the three major events of instruction where the instructor can influence the learner to aid the learning process.

Exam Preparation

At the start of the course the students are given examples of essay questions from which the final exam will be drawn. Students are asked to use the journal to work out answers to the questions during the course as they gain new knowledge and insights. In some cases the journal may be permitted to be used during the actual exam.

Examination (Exam)

A formal device designed to measure someone's achievements within a training system. It usually involves questions or problems the learner must respond to.

Expressive Objectives

Expressive objectives which describe the learning event but not the criteria or standard expected. With expressive outcomes, it is important to specify the context in which the learning event occurs and the reflective process through which learners describe or 'express' what they have learned.

Expressive Outcome

A type of learning outcome that emphasizes learner expression rather than learner performance. Usually used in the documentation of academic programs. One form of documenting Expressive Outcomes encompasses three components:

- (i) content
- (ii) learning event or experience
- (iii) reflective activity.

External Evaluator

An evaluator is a qualified assessor; is not employed by the organization administering/delivering the course/program; may or may not be an expert in the content field.

Extrinsic

From the outside, as in motivation.

Facilitator

A leader who is skilled in helping a learner or group of learners to specify learning objectives, to select and apply strategies through which to reach them and to determine whether or not they have been met.

Facts

Specific types of information which the student is expected to remember; these may include dates, names of persons or events, and descriptions; generally they are particular details which are to be known simply because someone regards them as important in their own right or as essential for other kinds of learning.

Family Literacy

Programs promotes integrated services in early childhood education, adult education, parent and child literacy activities, and parenting skills.

Feedback

Information to the student about the adequacy of his performance, information to instructors or course managers about how well the instruction is working.

Fidelity

The degree to which an evaluation remains true to its intent.

Field of Evaluation

In evaluation, refers to program evaluation, personnel evaluation, product evaluation etc.

Fluid Intelligence

Fluid intelligence is the type of intelligence you use to solve problems in such areas as spatial relations. If someone placed some blocks in front of you in a certain pattern and asked you to put another set of blocks in the same pattern, you would be using your spatial relations skills. This type of intelligence declines a certain amount as we age. We can still learn skills in this area but it takes us longer.

Formative

The type of assessment that is regular and on-going during the course. This type of assessment provides feedback to the learner about her progress and guides her to better performance.

Formative Evaluation

Evaluation conducted while a course is in progress to enable difficulties to be detected and corrected immediately.

Forum

A period of open discussion among members of an entire group, with one or more resource persons. A moderator usually directs and guides the discussion.

Further Education

Full-time and/or part-time education for persons who have left school. It can include higher education and adult education but is most often used in a narrower sense to denote forms of vocational training leading to technical or professional qualifications.

Gardner, Howard

Educator and psychologist who espoused and articulated the theory of Multiple Intelligences.

General Area of Competence

Used in the DACUM system of curriculum design to describe a general group of activities which make up one part of a particular job. AKA - Instructional Goal.

Goal

- (a) A general statement of intent in education.
- (b) A general outcome not necessarily stated in measurable terms. AKA - General Area of Compliance.

Goal Analysis

A procedure through which an educational need may be analyzed for its meaningful components. The product is a goal statement which forms the basis for an educational program.

Guided

The instructor poses content specific questions which can be quite detailed. The student is expected to reflect, research and answer the question. Often this type stipulates the amount to be written.

Halo Effect

The tendency to rate an individual's performance higher than deserved because of prior positive impressions of this individual. Simply put, if you think highly of someone, it is possible that you will assess their performance higher because of your positive bias.

Hegemony

The dominant influence or authority over others, especially among states and nations; dominant ideology.

Hierarchy

- (a) A system of arranging learning outcomes in order to apprehend sequence, level of difficulty, chronological order, and so on.
- (b) A chart of the subordinate skills related to some particularly complex skill that is to be learned.

In-Service Education

Education providing sustained further study enabling employed persons to improve skills and qualifications relating to their employment.

Indirect Instruction

Teaching strategies that are learner centered. These strategies are used when dealing with inquiry and problem solving.

Individualized Instruction

- (a) Instruction specifically designed to take into account each learner's existing skills. The term is also used sometimes to describe the process of a learner interacting individually with prepared materials or computer-assisted programs.
- (b) An approach for managing the instructional process within which the focus is on helping individual learners (as opposed to groups of learners) acquire the knowledge, skills and attitudes needed. It is geared to the student's own needs, learning preferences, and rate of learning.

Informal Adult Education

Structured sequential education for adults, successful completion of which is not intended to be recognized by a formal award, such as a credit, diploma, degree or professional qualification, but which is undertaken to meet some other - usually immediate interest or need; adult education in which the learning is purposive, but the learning experience is not structured in the form of a class under the direction of a teacher responsible for educating the learners, nor need it be organized in a progressive sequence.

Informal Education

The lifelong process whereby every individual acquires attitudes, values, skills and knowledge from daily experience, educative influences and resources in his or her environment - from family and neighbours, from work and play, from the market place, the library and the mass media.

Instruction

- (a) The set of events designed to initiate, activate and support learning in the human learner. Such events must first be planned, and secondly, they must be delivered, that is made to have their effects on the learner.
- (b) The process of designing and managing external events to activate and support the internal process of learning. It requires the sponsorship of an individual or institution and the supervision of an instructor.
- (c) Whereas curriculum identifies the content or "what is to be learned", instruction is the process, the how, or the means by which the intended learning will be achieved.

Instructional Design

- (a) The process of identifying three levels of outcomes: goals, objectives and learning tasks. Once stated, appropriate instructional techniques are selected and resource materials identified or developed.
- (b) A combination of people, methods, equipment, location and timings designed to achieve instructional objectives in the most effective way.

Instructional Media

Any means, agency or instrumentality used to communicate information to learners.

Instructional Method

The manner or medium by which instruction takes place. Classroom instruction is one method. Web courses are a distinctly different method of instruction.

Instructional Techniques

Strategies and activities selected or created by the instructor to facilitate learning. See activities.

Instructor

- (a) A person employed in an official capacity for the purpose of guiding and directing the learning experience of pupils and students in an educational institution, whether public or private. Usually, the person should have completed a professional training course in a teacher education institution leading to the award of appropriate credentials.
- (b) Any person designated to provide a particular segment of instruction within a course.

Instrument

An assessment device adopted, adapted, or constructed for the purpose of the evaluation.

Instrumental Use

Data used to make a direct decision about a specific evaluand.

Intellectual Skills

- (a) Mental skills; the learning of concepts and rules; the kinds of capabilities that make it possible for the student to do something with the symbols representing his environment; knowing how.
- (b) The mental skills involved whenever you perform an activity that requires mental processing.

Internal Evaluator

An evaluator who is a member of the team, is employed by the organization conducting the evaluation, is probably an instructor for the course/content being evaluated.

Intrinsic

From within, as in motivation.

Item

A general term that refers to the “questions” on a quiz or test. Item is more general word that refers to statements, questions and directions that are used to elicit students’ responses.

Job Analysis

The process of examining a job to identify its component parts and the circumstances under which it is performed. The detail and approach may vary according to the purpose for which the job is being analyzed. e.g. vocational guidance, personnel selection, training, equipment design.

Job Task

A complete element of work. A performed task usually generates a product or an observable change in the work environment. A job task statement, therefore, should begin with an action verb. The development of a list of job tasks should answer the question, “What is a person required to do in this position?”

Journal

Similar to a diary in nature, a journal is used by instructors to encourage students to think about course concepts and activities. It is usually most effective when given value towards the course grade in a credit course. In non-credit courses, it is also very useful but it must be connected to one or more important course outcomes.

Journal Writing

Either a structured or an unstructured writing process that is linked to a class activity or a reading assignment.

Kind of Evaluation

A kind of evaluation references pre-assessment, formative, summative, post assessment, longitudinal study etc.; a kind of evaluation might be thought of in terms of timing, i.e. when it is administered; a kind of evaluation differs from a type of evaluation

Knowledge

The store of information and data that a person possesses. It includes facts, principles, meanings, concepts and relationships.

Knowledge Outcomes

Much of classroom learning is concerned with the learning outcomes of information, facts principles, theories and their application. These are knowledge outcomes and are in Bloom’s cognitive domain. In assessment instructors must be able to identify clearly the knowledge that they want their learners to display and define clearly how that knowledge should be manifested. Hence, the intense concentration in curriculum design in describing the outcomes accurately and realistically.

Knowles, Malcolm

Often called the “father of adult education”. Knowles coined the term “androgogy” which describes the art and science of teaching adults.

Laboratory

Instead of a lab report, learners are asked to think about the procedures and experiments they conduct in the lab. Notations are expected to be reflections on their personal lab experiences.

Learner

Anyone who is concerned with acquiring new knowledge and skills.

Learner Centred

In a learner-centred approach, "learners are closely involved in the decision-making process regarding the content of the curriculum and how it is taught" (Nunan, 1988)

Learner-Based Education

Education in which the content and the learning and teaching processes are determined by the needs and desires of the learners who participate actively in shaping and controlling them. It draws upon the learner's own resources and experiences.

Learning

- (a) A more or less permanent change in human capability or disposition; it is a process which occurs within the brain of an individual and may or may not be associated with an intention on the learner's part.
- (b) A process which involves interaction with the external environment (or a representation of this interaction). Learning is inferred when a change or modification in behaviour occurs which persists over relatively long periods during the life of an individual.
- (c) The process through which new knowledge, insights or behavioural skills are acquired.

Learning Activities

Directions telling the student what to do, why, and how to perform a task.

Learning Task

The smallest unit of performance which can be identified as having a distinct independent purpose. Achievement of several Learning Tasks lead to the achievement of a Performance Objective.

Learning Climate

The environmental background for learning; it includes all the physical and social dimensions within the formal instructional setting which must be established and maintained in such a way that the learners will be comfortable enough to feel inclined to remain in the environment.

Learning Journal

The learning journal is a systematic way of documenting learning and collecting information for self-analysis and reflection.

Learning Log

Students are asked to write a certain number of pages each week or make a certain number of entries. They may write whatever they choose, but it must be related to the course content.

Learning Outcomes

A method of classifying types of content to be learned into various categories to aid in organizing instruction. The categories include goals, objectives, and learning tasks. Each describes a different level of outcome. A goal is a major statement of intent covering a whole program or a course. An objective generally represents a specific unit of instruction and sets conditions and performance criteria. Learning tasks are the smallest manageable units which make up an objective.

Learning Style

Term denoting the sum of the ways of problem solving, thinking and learning used habitually by an individual.

Learning Task

The smallest unit of performance which can be identified as having a distinct independent purpose. Achievement of several Learning Tasks lead to the achievement of a Performance Objective.

Lecture

- (a) A discourse on a particular subject organized logically so as to present the maximum information with the minimum of complexity.
- (b) An instructional technique through which an agent presents an oral discourse on a particular subject.

Lesson

An instructional design for achieving one or more instructional objectives within a specified time frame.

Lesson Plan

An outline of the instructional design to be used to achieve one or more specific instructional objectives. It shows clearly how the lesson involved is to be carried out.

Maximum Performance Assessment

Assessment that measure a student's abilities when he puts forward his best effort. Both achievement and aptitude assessment are based on the idea of measuring a learner's ability as she demonstrates the best she can do or be.

Mean

This is another term for the numerical average for a group of numbers. If the average score on a test is 73, which is the mean. All the scores added and divided by the number of tests.

Median

Another type of average. The median score is the middle one. The median score in a class of learners is midway from the top and bottom scores on a test.

Mentor

A person who advises, guides, and supports someone in a long-term relationship. Mentorship assumes a compatible relationship and mutual consent.

Metacognition

The ability to think about, understand and develop one's ability to learn.

Mode

Yet another type of average, this is the most frequently occurring score on a test. It is not a very reliable way of interpreting scores.

Motivation

- (a) Term employed generally for the phenomena involved in the operation of incentives or drives.
- (b) In instruction, motivation is the first stage of learning where certain expectations are activated and the learner begins to pay attention to the material to be learned.

Motor Skills

Basically the same as what Bloom et al define as the psychomotor domain - the skills involved in brain-muscle coordination; e.g., hand-eye coordination.

Motor Skills (Psychomotor)

- (a) Muscular activity having some direct impact on objects in the environment. This impact is accomplished by a total action that is smooth, regular and precisely timed.
- (b) Capabilities which make possible the precise smooth and accurately timed execution of performances involving the use of muscles.

Metacognition

The ability to think about, understand and develop one's ability to learn.

Needs Assessment

- (a) A systematic method of determining the educational needs and learning and social goals of a particular group or community.
- (b) A process which involves a decision regarding a normative standard, a description of the current situation of a group of learners, a comparison of the two and a commitment to the goal of reducing the discrepancy.
- (c) The collection of data which documents why an educational activity should be planned and offered to a group of learners.

Non-Credit

An adjective which indicates that a course or program is not intended to be or not accepted as, part of the study requirements leading to a degree, diploma, certificate, or other educational qualification.

Norm

A single value or a distribution of values, constituting the typical performance of a given group.

Norm Referenced Evaluation

Evaluation that is based on relative standards of knowledge, skill or attitude. The interpretation of the learner's performance comes from comparing current learners' performance with a selected group of previous learners' scores on the same test. Current learners are compared against the "norm" or average score of the earlier group. The bell curve is associated with this type of referencing.

Objective

- (a) (adjective) Not influenced by personal feelings, tastes or opinions in considering and representing facts.
- (b) Not dependent on the mind for existence.
- (c) (noun) Expression of one of the categories of learning outcome in terms of human performance and specification of the situation in which it is to be observed; a description of the competency or what the learner will be able to do following instruction and practice

Objective Item (creation)

An assessment item in which the student provides one or two words in writing (creates a response). Objective refers to the limitations of the response. There is usually only one correct answer thus diminishing the need for the instructor to interpret the response.

Objective Item (selection)

A question of the multiple choice, alternate response or matching type. The learner selects the correct response. Objective in this sense means the reader (instructor) does not have to interpret the learner's answer since there is one correct response

Objective, Affective

Objective which emphasizes a feeling, tone, an emotion, or a degree of acceptance or rejection.

Objective, Cognitive

Objective which emphasizes remembering or reproducing something which has presumably been learned or an objective which emphasizes the solving of some intellective task for which the learner has to determine the essential problem and then reorder given material or combine it with ideas, methods or procedures previously learned.

Objective, Enabling

- (a) A statement of specific expectations, derived from a performance objective, describing the skill and level of achievement expected in a unit of instruction.
- (b) One of the several process-type objectives that help students progress toward achievement of a terminal objective.

Objective, Instructional

A statement which describes clearly and specifically what each participant will achieve as a result of taking part in the learning experiences in a course. The objective also stipulates how learners will show that they have acquired the prescribed capabilities (conditions), and what degree of achievement is sufficient to meet the criteria or standards.

Objective, Performance

- (a) Description of the general outcomes of a program so that these outcomes can be understood by students who will then be able to determine exactly what is expected of them; by teachers to identify the outcomes they are responsible for; and by employers and administrators in order to determine if the program is in fact providing the competent human resources needed.
- (b) A training objective which states: performance, what the trainee must do to demonstrate that he has achieved the objective; condition, what are the circumstances under which the trainee must demonstrate his competence; and criterion, the standard of performance which the trainee must attain.

Objective, Psychomotor

An objective which emphasizes the development of physical motor skills or muscular activity.

Ontology

The degree of receptiveness to subjectivity and objectivity.

Panel Discussion

Persons with specific knowledge discuss an assigned topic in front of a group.

Pedagogy

The art and science of teaching children.

PERC

A conceptual framework for the first session of a course. It suggests that very early on the instructor must answer questions related to purpose of the course, mutual expectations, instructor and student roles, and course content.

Performance

A description of what the student will be able to do as a result of instruction; i.e., the student performance.

Performance based Assessment

Assessment that is something other than asking the learner to select the correct answer. In performance based assessment the emphasis is on asking the learner to do rather than just know.

Performance-Based Instruction

A system of instruction which stresses what the learner will do as a result of instruction.

Perspective

The lens through which you view the world; a mental view of the relative importance of things; the interrelation in which a subject and its parts are mentally viewed; a point of view; the capacity to view things in the relations or relative importance.

Persuasive Use

Data collected to defend a position already taken.

Placement Assessment

This type of assessment attempts to document a person's mastery of course goals and objectives before they enrol. It is frequently used when records of previous educational achievement are missing or difficult to interpret.

Post-Secondary Education

All learning activities undertaken after completing secondary education, with the exception of adult basic education in the secondary curriculum.

Practice

A learner is provided with an opportunity to develop skills under the guidance of an instructional agent who assists him to attain increasingly accurate responses to task relevant cues and to evaluate the degree of mastery he is obtaining.

Predictive Validity

The degree of confidence you have in the results of assessment and evaluation to indicate a student's performance in the future—in the next course or on the job for example

Prescriptive Need

A prescriptive need shows a discrepancy between PSA and FSA that is identified by someone other than the owner of the discrepancy. For example; an employer may decide that her secretary needs a course on "How to Meet the Public". The secretary may not think she needs this course at all.

Presentation

Learners take on the role of instructor and present material that they have studied. The learners must understand the material and communicate clearly.

Procedural Memory

Those things that once learned no longer require conscious thought, Examples are: habits and motor skills.

Program

A number of courses that when completed provide the learner with the competency skills, knowledge and attitudes needed to function adequately in a specific field. Programs result in formal recognition: certificate or diploma.

Program Planning

Processes by which a person, either alone, or with a group, analyses a situation, and identifies and selects the educational objectives to be attained.

Psychomotor Domain

Others suggest that behaviours in the psychomotor domain range from the recognition of items through to the automatic conscious operation of several complex movements.

Qualitative Information

Facts and claims presented in narrative, not numerical, form.

Qualitative Research

Research which embraces subjective data, anecdotal information; data that must be interpreted; findings must be teased out of the explanation/dialogue.

Quantitative Information

Facts and claims that are represented by numbers.

Random

Affected by chance.

Readings Log

Entries are tied to specific course readings. While the students are encouraged to write what they choose, the instructor often suggests they make connections amongst the readings, respond to provocative and new ideas, argue with the authors, and/or summarize or evaluate (notice the cognitive spectrum) readings. Combinations of these approaches can be even more effective.

Recall

That part of the memory function which permits a person to pull out from memory an experience, or an event. In learning the process involves the learner recalling previously learned material for purposes of demonstrating he or she has retained the material for purposes of applying this material or, to some new material to be learned.

Reciprocity

The notion that embraces mutual respect and understanding; the notion of giving thanks for shared experience; the notion of doing no harm.

Recognition

Describes the learner's ability to examine information and place it in its previous context.

Recognize/Recall

The recall of common terms, facts, basic principles. List facts, matches items, identifies and names objects.

Reflective Observation

Understanding the meaning of ideas and situations by carefully observing and impartially describing them.

Reflective Practice

Reflective practice is a mode that integrates or links thought and action with reflection.

Reflective Practitioner

A professional who examines and questions one's practice and develops a personal philosophy and theory. This is a continuous process.

Reliability

The characteristic of an assessment instrument when it obtains consistent results. If a learner takes the same test on two different occasions and the results are similar, then the test has a high degree of this.

Reliable Measure

A measure that provides consistent indications of the characteristics being measured. (Also, see Generalizability)

Role Play

People spontaneously act out problems in human relations. They then analyse the enactment with other players and observers. Role plays are not scripted.

Rubric

A term used in conjunction with rating. It is a detailed description of performance at each point of a rating scale. A rubric assists the rater to differentiate between those points on the scale by supplying sufficient descriptive detail.

Rule

A learned capability which makes it possible for the individual to do something, using symbols (most commonly the symbols of language and mathematics).

Self-Directed Learner

A learner who initiates and accepts primary responsibility for the planning, conduct and evaluation of his or her own learning projects. A self-directed learner may be assisted by other persons such as teachers or friends or may participate in a learning group such as a class.

Self-Directed Learning

A process by which an individual or group initiates and takes primary responsibility for planning, conducting and evaluating its own learning projects. It may take place with the help of persons such as teachers or friends of an institution.

Semantic Memory

Acquired learning - facts and concepts. Our general knowledge.

Semi-Structured

These guide the learner in deciding what to say. The student may be asked to summarize what he/she has learned and/or be challenged to pose a question for the class related to the previous lesson. These types of journals often use probing questions to stimulate thought.

Seminar

Students study a subject under the guidance of an instructor and then report back to the class, either individually or as a group.

Simulation

A structured situation in which learners are involved with a setting. People and situations that represent a real life issue.

Skill

- (a) The capability of performing an action with a degree of proficiency; a particular area of proficiency; the mental and physical action skills of perception, motor co-ordination, etc.
- (b) A specific defined behaviour or piece of work assigned to, or expected of someone in a specified position; used synonymously with tasks.
- (c) The ability to perform occupational tasks with a degree of proficiency within a given occupation. Skill is conceived of as a composite of three completely interdependent components: cognitive, affective, and psychomotor.

Soft Skills

See Affective Domain. In particular they encompass the attitudinal skills needed for good inter-personal communication and cooperation.

Stakeholders

Individuals or groups who may affect or be affected by evaluation.

Standardized Tests

Assessment instruments in which the questions are carefully developed the directions clear and the procedure for administration uniform. This type of test is used in norm-referenced evaluation and large-scale assessment.

Standards

The degree of excellence required for a specific purpose; a document specifying the agreed qualities or properties; documented agreements containing technical specifications, precise criteria used for rules/guidelines; ISO specifications that ensure consistency, reliability, effectiveness.

Statistic

A summary number that is typically used to describe a characteristic of a sample.

Step

A term referring to the next level into which all job tasks may be subdivided. Also commonly referred to as activities, operations, or elements.

Storytelling

A narrative, real or fictional, that makes a point and enhances the learning objective.

Style

The way a person prefers to organize experience in relation to skills, knowledge, meanings, values, and strategies.

Subjective

- (a) (adjective) Based on or influenced by personal feelings, tastes or opinions.
- (b) dependent on the mind for existence.

Subjective (performance)

A form of assessment activity during which the learner shows that she is capable by performing a task or procedure. For example, the student might show how to deal with a customer's complaint. Subjective refers to the instructor's or observer's interpretation of that performance.

Subjective (product)

A form of assessment in which the student creates an object (a baked good, a table, a piece of metal work or article of clothing etc. The observer (instructor) assesses the submitted work and determines the learner's level of competence as based on the quality of the completed product.

Subjective Item (creation)

The learner creates or writes an answer such as an extended essay or a research paper. Subjective in this sense means the reader (instructor) has to interpret the answer and decide if it is acceptable or not.

Subjectivity

Created in the mind; directed by the consciousness of the thinker, dependent on personal opinions or idiosyncrasy.

Summative Evaluation

- (a) The type of evaluation used at the end of a term, course, or program for purposes of grading, certification, evaluation of progress or research on the effectiveness of a curriculum course of study or educational plan.
- (b) Evaluation conducted at the conclusion of a program to sum up the learning that occurred.

Syllabus

AKA - Course Outline, Curriculum Outline. Outline of the elements of a course, presented in a logical order of growing difficulty.

Synthesis

The ability to bring together elements to form a whole, categorize, compose, create, rearrange, modify, integrate, and generate new patterns.

SQ4R

A method of studying new material; SQ4R stands for Survey, Question, Read (to answer the questions), Recite (in your own words, recite the answer to the questions), Rite (write out the answers to the questions), Review (Cover the half of the page with the answers and try to answer the questions).

Target Population Description

A written description of the characteristics of that group of people for whom a course is intended. It attempts to describe them as they are rather than as the describer would like them to be.

Task

- (a) The smallest unit of performance which can be identified as having a distinct independent purpose.
- (b) A work activity that is discreet, observable, performed within a limited period of time, and that leads to a product, service, or decision. Tasks are also frequently referred to as the skills or competencies that students or trainees must obtain in order to be successful workers.

Task Analysis

- (a) The process of identifying and listing job tasks and then detailing each task to isolate knowledge, skills and attitudes.
- (b) A systematic analysis of the behaviour required to carry out a task with a view to identifying areas of difficulty and the appropriate training techniques and learning aids necessary for successful instruction.

Teachable Moment

Periods, stages or points in time at which a person is particularly ready to learn or be taught. The times at which they occur are influenced by a person's developmental, family, social or work situation. Readiness to learn at these times may be generalized, but it is usually directed to knowledge and skills relevant to that situation.

Test Blueprint

A two-way grid, sometimes called a test blueprint, which lists major areas of content to be covered by the test as row headings and major kinds of abilities to be developed and tested as column headings.

Test Retest Reliability

The extent to which two administrations of the same test to the same group of subjects yield consistent results.

Trainer

Person who directs the practice of skills toward immediate improvements in some art or tasks; usually used for leader in T-groups and for instructor in industrial and management education.

Training

- (a) Activities which aim at providing the skills, knowledge and attitudes required for employment in a particular occupation, group of related occupations or for exercising a function in any field of economic activity. Within the broad term a number of derivatives or subdivisions may be noted based on the purpose and level of the training, the age group or other characteristics of the trainee, the place where the training is given, etc.
- (b) The systematic development of the attitude/knowledge/skill behaviour pattern required by an individual to perform adequately at a given task or job.

Triangulation

Notion that multiple sources of feedback (3) ensures a rich data base of data; the use of multiple sources and methods to gather similar information.

Typical Performance Assessment

Assessment which attempts to predict how a learner will act in the future based on how she is inclined to act today. Personality profile assessment and learning style type assessment are of this type. This type of assessment is used sparingly in education.

Unit of Instruction

The smallest division of instruction for which a full lesson is taught.

Utility

The extent to which an evaluation produces and disseminates reports that inform relevant audiences and have beneficial impact on their work.

Validity

In measurement, the degree to which an item measures that which it is intended to measure. For example, if a test is supposed to measure ability to do math, the test would be valid if it really does measure math ability. If the test is constructed in such a way that it is difficult for students to read and understand the questions, the test may not be valid because it is really measuring a student's reading ability, not math ability.

Values

One's principles or standards; one's judgement or devotion to what is important in life.

Verbal Information

Verbal information is simply 'what' we know. Verbal Information does not involve applying the information. For example, verbal information can be as simple as knowing that Regina is the capital of Saskatchewan or knowing the alphabet or knowing the names of tools or processes or knowing the dates of events in history. In summary: 'knowing what'.

Whole Person Fallacy

The belief that no test can measure the entirety of a person's abilities and qualities. Motivation, creativity, ethics, citizenship and sense of social responsibility in the individual are rarely if ever assessed and make up critical aspects of an individual. No one test should be relied on solely in making important educational decisions.

Wlodkowski, Raymond, J.

Noted for his theories of motivation, (a) Time Continuum Model, and (b) Culturally responsive teaching.

Workplace Education

Provides contextual basic skill instruction to existing workers through business-education partnerships to enable workers, in need of more advanced skills, to maintain or advance in their jobs.

Z scores

A scoring system used to interpret the results of norm referenced evaluation. This is the most common form of communicating results and it is expressed in terms of standard deviations. Standard deviations are units above or below the mean and appear as + or -numbers.