MINISTRY OF EDUCATION AND CULTURE IN COLLABORATION WITH UNICEF

GUIDELINES FOR DEVELOPING ASSESSMENT TOOLS FOR COMPLEMENTARY BASIC EDUCATION IN TANZANIA (COBET)

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1.1 Introduction

COBET programme aims at offering education to all children who are out of school, non-enrolled and dropouts. The major objective of COBET is to provide an alternative learning opportunity to out of school children especially girls. The COBET curriculum has been enriched with life and work skills. Such skills are localised to ensure that children learn only the skills that are relevant to their environment so that they may use the skills immediately. Emphasis has been placed on the teaching methods that are participatory in nature. Learners are supposed to understand the concepts and at the same time understand the importance of learning such topics.

Assessment is the process of collecting information on the progress of learner's learning. The assessment results will clearly depend on what the task is and how the judgement is made in relation to what standards or criteria. Assessment is an integral part of teaching activity and normally there are various reasons for doing assessment.

1.2 Objective of Assessment for COBET

The main objective of assessment in COBET programme are: to

- establish whether the COBET objectives are attained as intended.
- determine life and work skills acquired.
- determine knowledge acquired after completion of a module.
- determine the effectiveness of teaching methods used.
- determine the readiness of a learner to be mainstreamed in primary schools.
- compare COBET learners with those in the mainstream (observe the similarities and differences in terms of knowledge acquired)

COBET is an innovative programme geared at ensuring that children who are out of school, for various reasons, are still given their right to basic education. It is necessary, however, to examine carefully issues that had contributed to their decision of dropping-out- of school. Examinations, particularly those accompanied by a punishment for failure to achieve a pass mark score, was cited in the needs assessment study as one of the factors influencing school dropouts. Care should be taken to ensure that learners themselves view assessment as the integral part of their learning. Assessment should also be viewed as a crucial element that influences facilitator's decision making and guides learner's learning activities.

1.3 Functional Role of assessment

Tests and other assessment procedures can be classified in terms of their functional role in classroom instruction. Such classification involve placement, formative, diagnostic and summative assessment (Linn and Gronlund, 1997).

1.3.1 Placement Assessment

Placement assessment is concerned with learner's entry performance and typically focuses on questions such as the following:

- Does the learner possess the knowledge and skills needed to begin the planned instruction?
- To what extent has the learner already developed the understanding and skills that are the goals of the planned instruction? Sufficient levels of understanding may indicate the need of skipping certain units and place a learner in a more advanced unit.

1.3.2 Formative Assessment

Formative assessment is used to monitor learning progress during instruction. Its purpose is to provide feedback to both learner and facilitator concerning learning successes and failures. Feedback to learners provides reinforcement of successful learning and identifies the specific learning errors that are in need of correction. Feedback to the

facilitator provides information for modifying instruction and for prescribing group and individual work. Observational techniques are useful in monitoring learner's progress and identifying learning errors. Because formative assessment is directed toward improving learning and instruction, the results are not typically used for assigning grades.

1.3.3 Diagnostic assessment

Diagnostic assessment is a highly specialised procedure. It is concerned with the persistent or recurring learning difficulties that are left unresolved by the standard procedures of formative assessment. If a learner continues to experience failure in a subject despite the use of alternative methods of teaching, then a more detailed diagnosis is required. Using a medical analogy, formative assessment provide first-aid treatment for simple learning problems and diagnosis assessment searches for the underlying causes of those problems that do not respond to first aid treatment. Diagnostic assessment is much more comprehensive and detailed. The aim of diagnostic assessment is to determine the causes of persistent learning problems and to formulate a plan for remedial action. Diagnostic assessment requires the most care because it is important to look at learners performance in terms of both what they are able to demonstrate, and how and why in the way they do. What are the areas of strengths and what are the areas of weakness?

1.3.4 Summative assessment

Summative assessment is usually done at the end of a course or unit. It is designed to determine the extent to which the instructional goals have been achieved and is used primarily for assigning course grades or for certifying learner mastery of the intended learning outcomes and competencies. It also provides information for judging the appropriateness of the course objectives and the effectiveness of the instruction.

2.0 Assessment in the Context of COBET

2.1 Placement, Formative diagnostic and summative assessment for COBET

All these four kinds of assessment procedures will be used in COBET programme. The anticipated learners may have not enrolled at all, but some might have dropped from the system. In that case, it is imperative to identify the skills mastered before they dropped and identify the level at which they should start learning. Therefore, the use of placement test is ideal to ensure that learners are appropriately placed. Moreover, moving from one level to another will depend entirely on learners extent of understanding materials designed for each level. Promotion can take place at any time as long as the facilitator has evidence to suggest that the learner is ready to be promoted to a higher level. In that case, a combination of both formative and summative assessment will be appropriate. Placement tests will be useful because we anticipate having learners of different abilities.

2.2 Learning Objectives

Learning objectives are statements of the signs to be shown by learners if they have successfully completed a learning experience. Educational objectives are normally classified into three major domains namely cognitive, affective and psychomotor domains. The cognitive domain is concerned with knowledge while the affective domain is concerned with values and attitudes, and the psychomotor domain is concerned with co-ordinated movement of the body. The detailed descriptions of each domain are presented in appendix 1, 2, and 3 respectively. Instructional objectives need to be stated in such a way that it specify the behaviour to be shown by learner as a result of learning and the standard of performance. Stating objectives in that manner facilitates the assessment process.

2.3 Learning Objectives, Instructional Strategies and Assessment Techniques

There is a strong relationship between the learning objectives, instructional strategies and assessment techniques. Learning objectives guides instruction and, at the end, determines what should be evaluated. The key to any effective assessment technique of learner's learning is to relate the assessment procedures as direct as possible to the intended learning outcomes. An examination of the sample verbs from cognitive domain of knowledge (e.g. recall, list, recognise) may suggest that instruction related to those learning objectives would be focused on giving the information to learners through the use of texts, notes, lectures or other types of direct teaching. There is a place for direct teaching to assist the learners in acquiring basic knowledge that will enable them to accomplish higher-level learning tasks. The COBET curriculum emphasises explorations from learners. Therefore, the facilitators will play a major role in guiding those explorations.

2.4 Assessing Cognitive Domain

With regard to assessment, facilitators should use a variety of techniques to evaluate the cognitive domain. However, the verbs used to convey the intent of the learning objective provide useful information for selecting specific assessment techniques. For example, the verb "identify" in a learning objective may suggest that the facilitator consider using objective assessment techniques , e.g. multiple-choice, matching or true-false items to gather information on learner's learning progress. The use of verbs such as apply, manipulate and operate listed within the application level of cognitive domain might suggest that the facilitator consider performance assessment tasks as the most important assessment technique.

Verbs within the Comprehension, Analysis, Synthesis and Evaluation levels e.g, formulate, contrast, categorise, propose, (see appendix 1) might suggest that the extended open responses, written assignments or presentations are appropriate data-gathering techniques.

2.5 Assessing the Affective Domain

Affective domain focuses on the learner's willingness to pay attention, to participate, to attach value to things and to develop personal value system. Due to the nature of the domain, evaluation can be perceived as problematic or difficult. It is important, however, that evaluation include the affective domain. One of the most effective ways of collecting information in this domain is through observations. The key to successful assessment in affective domain is to have clear understanding of the learning objectives and to identify specific indicators of learning progress. Once these are in place, learner's progress can be assessed through observation checklists or rating scales incorporating the progress indicators. Self-assessment techniques such as attitude scales or written assignments may be used in conjunction with other activities. Self-assessment techniques such as attitude scales or written assignments may be used in conjunction with other activities such as interview with the facilitator. Appendix 2 provides verbs that may assist in assessment of cognitive domain.

2.6 Assessing Psychomotor Domain

Learning objectives within the psychomotor domain are concerned with gross and finely co-ordinated body movements as well as verbal and non-verbal communication. Observational checklists, rating scales and anecdotal records are effective ways of gathering learner progress on psychomotor development. A sample of expected behaviour to be observed in relation to psychomotor development is presented in appendix 3.

2.7 Guiding Principles for Assessing COBET Learners

The following are proposed guiding principles to be used for assessing COBET learners.

Assessment should:

- be an integral part of teaching learning process - information collected

through the assessment process should serve as feedback to enhance the teaching and learning process.

- be well planned and conducted on continuous basis.

- reflect the intended outcomes of the curriculum.

- assist facilitators in meeting learners needs and providing them with appropriate knowledge.

- base on variety of indicators that may be norm-referenced, criterion-referenced or self-referenced framework.

- provide information within the cognitive, affective, and psychomotor domains.

- provide opportunities for learner development and improvement.

- Include the communication of a facilitator's overall evaluation plan to learners in advance and the procedures to be used in assessing performance relative to the objectives.

- Be regularly communicated to parents/guardians and learners in a meaningful manner.

3.0 Ways of Assessing Learners

Assessment can be done using various ways like individual assessment, group assessment, and self-assessment or portfolio assessment.

3.1 Individual assessment

This focus on individual learner progress. Assessment activities constructed by the facilitator are completed individually by the learners. This allows the facilitator to evaluate individual progress.

A decision has to be made as to whether the learner's progress will be compared to:

- his or her previous level (self-referenced)
- a predetermined standard (criterion-referenced)
- a group standard at the same age or level as the learner (norm-referenced)

3.2 Group assessment

Focus on the progress a group has made by co-operating and collaborating to complete assessment activities organized by the facilitator. This enables the facilitator to assess social skills and cooperative learning process. Facilitator may decide to have learners complete written assignments, presentations or performance of skills or processes in a group.

3.3 Self- and Peer-assessment

Self-assessment refers to the learner's own assessment of their progress in terms of knowledge, skills, processes, or attitudes. Peer assessment refers to learner assessment of other learners. Peer-assessment can be conducted either individually or collaboratively in groups.

This kind of assessment should be strongly emphasised in COBET Programme since the main objective is to promote individual learning and to help learners assist each other in learning (Child-to-child approach).

3.4 Portfolio Assessment

The portfolio is a collection of learner-produced materials assembled over an extended period of time that allows the facilitator to evaluate learner growth and overall learning progress during that period of time. Inclusion rule of the

materials to a portfolio should be established: Some of the guiding decisions include:

- Who will decide on what to include? Learner? Facilitator? Both working in consultation?

- What will be included? Examples of best work? Examples of worst work? Some of each type?

- Will there be a limit to the amount of materials that can be included?

4.0 Methods of assessment

COBET facilitators will be responsible for assessment of learners' competencies. Basically, assessment will be conducted on regular basis. The choice of the kind of activity will depend mostly on the learning competencies to be achieved in each unit. Since the main objective of COBET is to build necessary skills and competencies that will enable the learners to live comfortably in the society, a record showing the extent to which learners acquire desirable competencies should be kept. Assessment methods include:

- observation checklists
- rating scales
- anecdotal records
- homework
- assignments
- exercises
- performance assessment
- Tests and Quizzes

4.1 Observation Checklist-

An observation checklist is a listing of specific desirable concepts, skills, processes, or attitudes so that you may record the presence or absence of them. If the observation checklist is used frequently, a profile of a learner's characteristics is assembled and eventually analysed.

Assessment context.

The observation checklist is most appropriate in situations where you wish to assess the learner's abilities, attitudes or performance in process areas. When used on a single occasion, observation checklist can provide formative evaluation information for the situation in which it is used. For example, to learn how effectively learners are when working in groups, a checklist to observe them in a single group session can be used. However, observation checklists are more useful when collected overtime and used for summative or

diagnostic purposes.

Guidelines for use.

The observation checklist is normally used during the class time, therefore, it must be simple. The most effective way of collecting data is to record learning progress of four or five learners at the same time. If the class is working in groups, do one group every day. Before starting a module or a unit, decide on what would constitute appropriate learning outcomes for the learners. If the purpose of assessment is to gather information to be used for making criterion-referenced judgements, decide on what your criteria will be. For example, if a module constitutes of eight objectives, you may decide that the criteria will be that six out of eight behaviours will be observed after completion of a module or unit. Other criteria that may categorise the performance as excellent, satisfactory or unsatisfactory may also be developed.

Before every class, enter the names of the learners, the date and the activity. During the class, pay special attention to the selected group so that you build an impression of their level of competence or performance of the processes or skills or attitudes you wish to record.

Example of Observation Checklist

Checklist for Assessing Problem-Solving Skills in Mathematics

Learner's Name: _____

Date: _____

Check the items that are applicable.

The learner is able to:

____ understand the situation or circumstances described in the story problem. ____

____ choose the correct mathematical operation (+, _, x, /).

____ distinguish between relevant and irrelevant information that is presented in the story problem.

_____ correctly write down the necessary computations.

_____ correctly choose the correct computational algorithm for use in the problem.

_____ interpret the answer obtained from the problem solved.

Checklist for assessing co-operation in group work

The learner:

_____ works with wide range of peers, not just with close friends.

_____ willingly shares materials and ideas with others.

_____ shows respect for others by listening and considering other points of view.

_____ follows group work rules as established for the activity.

_____ fulfils his/her work responsibilities in the group.

_____ participates in discussions during the time set aside for groups.

4.2 Rating Scale

Rating scales are measuring instruments that allow representation of the extent to which specific concepts, skills, processes or attitudes exist in learners.

Evaluation Context

Rating scales are particularly useful in situations where the learner performance can be described along a continuum, such as participation in a discussion.

Guidelines for Use

Usually a checklist is used during class time. Therefore, it must be simple to use. Once you have decided upon the activity you wish to rate, break it up into its constituent parts. Make the parts as specific as possible to increase the scale's reliability. For example, instead of globally rating "performance in debates" decide on what performance criteria you wish to observe in the learner. This could be, for example, "states arguments" demonstrates background preparation", "respond to opposition arguments relevantly". Such components would give a broader picture of learner's performance rather than the rating on a global behaviour. You need to set a criteria that would constitute excellent, satisfactory or unsatisfactory work.

Example of a Rating Scale for Co-operative Group learning

The learner:	never		sometimes		always
			Scale Points		
1. work with wide range of peers, not just with close friends.	1	2	3	4	5
2. willingly shares materials and ideas with others.	1	2	3	4	5
3. shows respect for others by listening and considering other points of view.	1	2	3	4	5
4. follows group work rules as established for the activity.	1	2	3	4	5
5. fulfils his/her work responsibilities in the group.	1	2	3	4	5
6. participates in discussions during the time set aside for groups.	1	2	3	4	5

Note: *the same scale was used as a checklist.*

4.3 Written assignments

These are designed to allow learners to plan compose and report upon a unit of learning. Learners may be given the opportunity to choose their own topic and design a framework for their work. Evaluation plans prepared in advance can provide structure to the whole exercise as well as indicate to the learners your criteria for assessing the quality of work.

4.4 Performance assessment

This refers to assessing learning progress in tasks that require learners to be actively engaged in some activities such as manipulating materials, demonstrating a skill, solving a multi-stage problem, or participating in a discussion. The main element of performance assessment is on the focus of what is being assessed. The objectives of teaching a unit will guide the decision on what performance to assess.

Points to remember

- Specify the criteria to be used for assessing performance level of your learner.

- Decide on how to record the information you gather from the learners. Will you use a rating scale, a checklist or anecdotal records?
- Share your evaluation plan with the learners. Let them know what you are assessing and how you will be doing it.

The information gathered through performance assessment is easily communicated to both learners and parents/guardians as it describes the observable actions of learners.

4.5 Homework

Refers to assigned work that learners are asked to complete during time that is outside the regular class period. Homework can provide facilitators with valuable information about learners learning. What is learned about learner progress depends upon the purpose for homework. Homework can take the following forms:

- When learners do not complete assigned work.
- When they are required to gather information prior to the class.
- When learners need extra practice of certain skills prior to learning further concepts.

Homework can be assessed for understanding, quality of work, task commitment or other indicators of learner's willingness to keep up with the assigned work. However, materials required for learners to complete the homework assignment must be taken into consideration.

Caution

- Never assign homework as a punishment.
- Do not use homework as a way of regaining lost instruction or work time.
- Assign tasks that are of interest and relevance to the learners

4.6 Quizzes and Tests

This category includes those assessment techniques that are used in situations structured to allow learners to demonstrate what they know.

There are several types of test items

- Performance test items
- Extended-response test items
- Short-answer items
- Matching items
- Multiple-choice items
- True/false items

4.7 Extended Response

This is effective in assessing learner's ability in expressing ideas, beliefs and values. Some appropriate situations for using extended open response items include when:

- You wish to assess a learner's ability to communicate through writing.
- Want to encourage learners to express themselves personally.
- Learners need to synthesize a broad range of ideas.

4.8 Short-answer items

- Requires a learner to supply an answer to a specific question. They are used for testing learner's ability to recall information.
- They are useful when you wish to assess how well learners have internalized content, but they should be complemented with other techniques that assess other aspects of learner progress.

4.9 Matching Items

- Consists of a set of problems or questions (premises) aligned in one column, and a set of possible responses aligned in another column.
- Can provide wide coverage of related facts, associations and relationship in effective manner. They should be used in conjunction with other types of assessment.

Hints

- Make sure that the directions are clear and provide all information necessary to answer the items.

- Long lists of premises and responses cause confusion and wastage of time through scanning of the lists. The entire matching exercise should be included in one page.

- Make sure that the material is homogeneous in nature

4.10 Multiple-choice items

In a multiple-choice item, a direct question or complete statement (stem) is presented and then followed by a number of possible answers, one of which is correct.

- They are used to test learner recall and recognition of information. If carefully constructed, they are also capable of measuring higher order thinking skills.

- A good stem should be straightforward and contain enough information to set the context of the item.

4.11 Guidelines for Constructing Test Items

Most measurement books provide guidelines on how to construct test items. Some of them are listed in the references. Only the key important issues are presented here are presented here:

- Ensure that each item measure an important learning outcome. Learners should feel that if they address the main objectives thoroughly, their knowledge and skills would be fairly assessed.

- Each item type should be appropriate for the particular learning outcome measured.
  Each item type has its own strengths and can be used effectively for the right purpose. Here a careful analysis of instructional objectives and the teaching strategies used must be done.

- State the items in simple and clear language.
  The focus should be on what they know rather than on how they can interpret the language used.

- The difficulty of the item should be appropriate for the learners who are to be tested.
- Each item should be independent of others, and all the items, as a group, should be free from overlap.

  Answer to one question should not enable the learner to answer another item correctly.
- Items to be included in a test should provide adequate coverage of questioning.

  You will find that some aspects of your courses offer more opportunities for developing test items than others. For those aspects that are not conducive to testing, check to ensure that you are using some other assessment techniques.

4.12 Systematic Use of Techiniques

Facilitators need to know when they will use assessment technique in the subject(s) they are teaching, e.g. at the beginning of the course? Throughout the course? At the end of the course?

Diagnostic tests involving the assessment of the level of concepts, language competence, reading level are often done at the beginning of the topic

Try to evenly space the times at which you will be assessing your learners. Assessment technique should be selected on the basis of learning outcomes. One of the guiding principles of learner evaluation is that the way you assess learners should reflect as closely as possible to what you wanted them to learn. If you want to check whether they have acquired content knowledge, use something like a paper-and pencil test that requires them to demonstrate that knowledge. But if you want to know if they can construct an argument, sew a button, then you must use

assessment technique that allows them to demonstrate the skill.

4.13 Appropriate frequency of Assessment

- Research shows that notice of upcoming assessment activities stimulates learners to study harder – they want to do well so they put in effort to prepare themselves. This effect wears off when the assessment activities are too close together - the learners becomes overloaded and the effect of prior notice is reduced.

- Count the cost in instruction time of assessment activities; the time spent for test and the time to go over completed tests are all factors that you should think about.

- Aim for a mix of assessment techniques. Include techniques that require individual learners to prepare in advance work in advance

4.14 Recording of Data

The recording and storing of raw data from which you will make evaluative decisions is extremely important. Without proper means of keeping information, you might not only forget important information you have collected on your learners over the course of a school year, but you recollection of information may be coloured by the way you and your learners have changed over time.

The second reason for maintaining your raw data is that these records have other uses beyond the classroom. For example, they may be used to communicate progress to the parents and community. Parents are familiar with written tests. When you report learner progress on dimensions that were not assessed through written tests, you may find that you may need to explain how you arrived at your evaluation.

COBET Centres may be evaluated by looking at the following indicators

- number of learners on each centre

- involvement of parents/community

- learning environment
- number of learners qualifying for mainstreaming
- provision of a clear schedule for assessment
- competencies acquired by learners

Reflecting on Learner Assessment

The following provides areas in which the reflection for assessment can focus upon

Issue for Reflection	Comments/Observations	Action to be Taken
Did the Evaluation plan cover enough for: • Knowledge? • Understanding? • Skills? • Attitudes? • Processes? • Growth?		
Did my learner evaluation plan allow me to make efficient use of time?		
Did my evaluation time make use of a variety of assessment techniques?		
Did the range of my techniques allow me to make interpretations and evaluate my learner progress?		
Did I consider the appropriateness of my assessment techniques in conjunction with the instructional approaches used?		
Did my assessment techniques allow my learners to show their best performance?		
Were my techniques fair, and were they used fairly?		
Did the assessment techniques allowed learners to transfer their knowledge and skills in real life experiences?		
Did I involve my learners in self-appraisal?		
Did I communicate my evaluation plan to my learners in advance?		
Did I regularly communicate evaluation information to my learners and to their parents/guardians?		

Appendix 1: Major categories in the cognitive domain of the Taxonomy of educational Objectives (Bloom, 1956)

Major Categories in the cognitive domain	Illustrative general instructional objective	Illustrative verbs for stating specific learning outcomes
Knowledge: refers to recall of previously learned materials	Knows basic concepts Knows specific facts Knows basic concepts Knows principles	Defines, describes, identifies, labels, lists, matches, names, outlines, reproduces, selects, states
Comprehension: refers to the ability to grasp the meaning of materials	Understands facts and principles Interprets verbal material Interprets charts and graphs Justify methods and procedures	Converts, defends, distinguishes, estimates, explain, extends, generalises, gives examples, Infers, paraphrases, predicts, rewrites, summarises
Application: the ability to use learned materials in new and concrete situations	Applies principles to new situations Applies theories to practical situations Solves mathematical problem Demonstrates correct usage of procedure	Changes, computes, demonstrates, discovers, manipulates, modifies, operates, predicts, prepares, relates, shows, solves, uses
Analysis: the ability to break down material into its constituent parts so that its organizational structure may be understood.	Recognises unstated assumptions Distinguish between facts and inferences Evaluates the relevancy of data	Breaks down, differentiates, distinguishes, discriminates, identifies, illustrates, infers, outlines, points out, relates, selects, separates, subdivide
Synthesis: the ability to put parts together to form a new whole	Gives a well-organised speech Writes a creative short story Integrates learning from different areas	Categorises, combines, compiles, composes, creates, devises, designs, explains, generates, modifies, organises, plans rearranges, reconstructs, relates, reorganises, revises, rewrites, summarises, tells, writes.
Evaluation: the ability to judge the value of material for a given purpose using a definite criteria.	Judges the consistency of written material Judges the value of work using internal or external criteria	Appraises, compares, concludes, contrasts, criticises, describes, discriminates, explains, interprets, justifies, relates, summarises, supports

Appendix 2: Major Categories in the Affective Domain

Descriptions of the Major Categories	Illustrative General Instructional Objectives	Illustrative verbs for stating specific learning outcomes
Receiving: refers to the learner's willingness to attend to particular phenomena or stimuli.	Listens attentively Shows awareness of the importance of learning Attend closely to the classroom activities	Asks, chooses, describes, follows, gives, holds, identifies, locates. Names, points to, selects, sits, uses
Responding: refers to active participation on the part of the learner	Completes assigned homework Participates in class discussion Volunteers for special tasks Shows interest in subject	Answers, assists, complies, conforms, discusses, greets, helps, labels, performs, practices, presents, reads, recites, reports, selects, tells, writes
Valuing: is concerned with the worth or value a learner attaches to a certain behaviour or object	Appreciates the role of science in everyday life Shows concern for the welfare of others Demonstrates commitment to social improvement	Completes, describes, differentiates, explains, follows, forms, initiates, invites, joins, justifies, proposes, reads, reports, selects, shares, studies, works
Organisation: concerned with bringing together different values, resolving conflicts between them and beginning the building of an internally consistent value system.	Recognises the role of systematic planning in solving problems Accepts responsibility for own behaviour Understands and accepts own strengths and limitations	Adheres, alters, arranges, combines, compares, completes, defends, explains, generalises, identifies, integrates, modifies, orders, organises, prepares, relates, synthesises
Characterisation by a value: at this level of the affective domain, the individual has a value system that has controlled his behaviour for a sufficiently long time for him to develop a certain life style.	Displays safety consciousness Practises co-operation in group activities, Uses objective approach in problem solving Maintains good health habits	Acts, discriminates, displays, influences, listens, modifies, performs, practices, proposes, qualifies, questions, revises, serves, solves, uses, verifies.

Appendix 3: Major Categories in Psychomotor Domain

Description of the Major Categories in the Psychomotor Domain	Illustrative General Instructional Objectives	Illustrative Verbs for stating Specific Learning Outcomes
1. **Perception.** Concerned with the use of the sense organs to obtain cues that guide motor activity.	Recognises malfunction by sound of machine Relates taste of food to need for seasoning Relates music to particular dance step	Chooses, describes, detects, differentiates, distinguishes, identifies, isolates, relates, selects, separates.
2. **Set.** Refers to readiness to take a particular type of action.	Knows sequence of steps in varnishing wood Demonstrates proper bodily stance for batting a ball Shows desire to type efficiently	Begins, displays explains, moves proceeds, reacts, responds, shows, starts, volunteers
3. **Guided Response.** Concerned with the early stages in learning a complex skill.	Performs a golf swing as demonstrated Applies first aid bandage as demonstrated Determines best sequence for preparing a meal	Assembles, builds, calibrates, constructs, dismantles, displays, dissects, fastens, fixes, grinds, heats, manipulates, measures, mends, mixes, organises, sketches
4. **Mechanism.** Concerned with performance acts where the learned responses have become habitual and the movements can be performed with some confidence and proficiency.	Writes smoothly and legibly Sets up laboratory equipment Operates a slide projector Demonstrated a simple dance step	(Same list as for Guided Response)
5. **Complex Overt Response.** Concerned with the skilful performance of motor acts that involves complex movement patterns.	Operates a power saw skilfully Demonstrates skills in repairing an automobile Repairs electronic equipment accurately	(Same list as for Guided Response)
6. **Adaptation.** Concerned with skills that are so well developed that the individual can modify movement patterns to fit special requirements or to meet a problem situation.	Modifies swimming strokes to fit the roughness of the water	Adapts, alters, changes rearranges, reorganises, revises, varies
7. **Origination.** Refers to the creating of new movement patterns to fit a particular situation or specific problem.	Creates a dance step Creates a musical composition Designs a new dress style	Arranges, combines composes, constructs, creates, designs, originates.