

Teachers' Assessment of Classroom Learning Outcomes

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Abstract

The study was carried out to find out the extent to which senior secondary school teachers in Delta State of Nigeria assess their students' learning outcomes during classroom teaching and learning. Two research questions and one hypothesis were drawn to guide the study. A sample of 1000 teachers was randomly selected using stratified technique (500 male and 500 female). The instrument was a questionnaire with face and construct validity, and a reliability co-efficient of 0.81 obtained through Cronbach Alpha as a measure of internal consistency. Percentage was used to answer the research questions while chi-square was used to test the hypothesis at .05 level of significance. The result showed that most teachers do not assess their students learning outcomes during and after teaching each topic from a given subject curriculum in the classroom. The extent of teachers' assessment of students learning outcomes in the classroom was low. The study has implication for teaching and assessment.

Keywords: Teaching, Learning outcomes and Assessment

Introduction

One of the greatest problems in education is the teaching of students in the classroom without immediate assessment. Some teachers teach and assess students learning outcomes while others do not. It is not good to teach the students without immediate assessment in the classroom. It will be difficult to measure their learning outcomes. Assessment that waits till the end of term or session does not improve teaching and learning. It should be continuous. Assessment should form an integral part of teaching and learning. It ensures effective teaching and learning. It helps to improve the use of teaching methods and improve the learning process. It enhances students learning outcomes and helps to improve their performances.

A teacher is expected to assess students learning outcomes after teaching. Assessment of human behaviour during teaching and learning is essential. The ways an individual learner thinks feels and acts physically provide the bases for the assessment of learning outcomes. These help to compose the domains of human behaviour. In the process of teaching, the teacher should ensure that students' behaviour in the cognitive, affective and psychomotor domains is considered. These promote effective teaching and learning. Assessment is a process that leads to judgment. It helps to measure or describe human behaviour. Learning outcomes are those aspects of human behaviour exhibited after an educational experience or instructional process. Therefore, defining the desired learning outcomes is the first step in good teaching, and it is essential in the assessment of the learning outcomes (Gronlund, 1985). It is only by identifying instructional objectives and stating them clearly in terms of specific behaviour that one can provide direction to the teaching process and set the stage for the assessment of learning outcomes.

In any instructional process, there are objectives to be achieved. These objectives should be the intended learning outcomes. The objectives should be in specific behavioural terms. At the end of the instruction or teaching, the learner should be able to demonstrate each of the objectives. It was pointed out that in writing objectives, action verbs are to be used to describe the behaviour of the learners to show evidence that they have learned (Ukwuije, 1996). Objectives should be expressed in behavioural terms and assessed. For instance, at the end of instruction or teaching, the learners or students should be able to name, mention, explain, express emotion and perform some physical activities. Generally, there should be good changes in the behaviour of the learners. These are the learning outcomes of instruction. The assessment implies that learning outcomes could be measured or described. Learning outcomes are the exhibited aspects of human behaviour that need to be judged for appropriateness. Individual behaviour varies and needs to be classified for easy assessment. Bloom (1956), Krathwohl (1964), and Harrow (1972) have classified behaviour into three domains. These include: cognitive behaviour, affective behaviour and psychomotor behaviour.

In the Handbook for Continuous Assessment, the Federal Ministry of Education, Science and Technology (1985) supported the view that behaviour includes all activities in the cognitive, affective and psychomotor domains. These domains of behaviour usually called taxonomy of educational objectives are the main focus of Assessment in Nigerian schools. Therefore, in teaching and assessment, the first step is to determine the learning outcomes to be expected from the students' experiences in and out of the classroom. Most teachers find it difficult to prepare instructional objectives in behavioural terms that cover the various domains of behaviour (cognitive affective and psychomotor). Some of them only assess cognitive as against affective and psychomotor (Osadebe & Odili,

2004).

However, the nature of instructional objectives depends on the teacher. The objectives should reflect the domains of behaviour (cognitive, affective and psychomotor). It should be noted that when instructional objectives are not achieved by the students, the teacher should modify and improve the teaching and learning process. He may give remedial attention to students where necessary. The teacher should ensure that his objectives are achieved by the students at the end of the lesson. The achievement of instructional objectives by students is an evidence of successful teaching and learning. This could be determined through assessment of learning outcomes.

Assessment leads to judgment or decision derived from analyzed data (Osadebe, 2005). Judgment should be made during and after a teaching learning process. Teachers should have a good knowledge of the procedures for assessment. These include placement, formative, diagnostic and summative. After the students have been selected and placed in a class, teaching and learning eventually commence. The teacher begins to observe learning outcomes or response of students from the formative stage. Oral questions, observation and other techniques may be used to experience the learning progress of students. Another stage is the diagnostic. During the learning process the teacher should observe and solve the case of students with learning difficulties. This process helps to achieve good learning outcomes. The final stage is the summative stage. The teacher should find out whether or not the instructional objectives have been achieved. These are determined through the use of oral questions, test, observation, questionnaire, etc. When there are good changes in learners or students behaviour in line with the instructional objectives, then learning outcomes have been attained through assessment. There should be intellectual, emotional and physical changes.

Therefore, from the teaching or instructional point of view, assessment is a process of determining the extent to which instructional objectives are achieved by students. It should be noted that identifying instructional objectives and stating them clearly in terms of specific behaviour, helps a teacher to provide direction to the teaching process and set the stage for assessment of learning outcomes in the classroom.

Literature Review

Teachers are expected to teach the students in their subject areas then assess them in the cognitive, affective and psychomotor domain (Osadebe, 2013). This will help to determine students' behaviour after teaching and learning. Assessment is the use of valid and reliable test, observation, questionnaire, interview and other instruments in obtaining information about a student's behaviour upon which judgement is made (Osadebe, 2013). The main focus of assessment is to analyze information provided by tests, interview, and observation and to combine the information to make complex and important judgements about individuals (Murphy & Davidshofer, 1988; Osadebe, 2013). Assessment has been defined as the processes and tools teachers use to make decision about students (Eggen & Kauchuk, 1994). Assessment forms an integral part of secondary school education. It serves various functions. It helps to determine students' achievement. It provides a feed back to lecturers about teachings and learning for improvement. It helps for the adjustment of students and their promotion from one class to the other. Indeed, it helps to determine students' grades or scores. There are two types of assessment. These include continuous assessment and single assessment usually called examination (Osadebe, 2013).

In teaching, assessment is a tool to successful learning. It helps to determine students learning outcomes. Teaching is a profession. Therefore, anyone who aspires to be a teacher should possess the professional background, and should be able to assess the students objectively during and after teaching and learning in the classroom.

It is expected that a professional teacher should be able to prepare his or her lesson note or guide. There should be a provision where at the end of every teaching, the students should be assessed or evaluated. This helps to ascertain whether or not the teaching was successful. The teaching process helps the teacher to find out whether or not students have mastered or achieved with much understanding the subject taught. That is the students should be able to define, describe, discuss among others on what has been taught in the classroom.

During the teaching period formative and summative assessment could be applied in the classroom. The formative assessment should be applied during the teaching period. It requires the use of observation, oral questioning among other methods to monitor teaching and learning progress. Then immediately after the teaching period, a valid and reliable test and other techniques could be used to achieve summative assessment. It should be noted that formative and summative are concepts that can be applied to any situation. It is expected that a teacher should use different methods to achieve successful teaching and learning. When students are doing well in assessment of learning outcomes, it is an indication of good teaching by the teacher. It is expected that every teacher should carry the students along during the teaching and learning process. The various learning outcomes in the cognitive, affective and psychomotor should be assessed as recommended by Alken (1979), Ukwuije (1996), Federal Ministry of Education, Science and technology (1985), Osadebe (2013). Teachers should be familiar with the domains of behaviour. Unfortunately, most teachers and examiners do not have much knowledge of the domains of behaviour for instructional objectives. This has also been observed by Onunkwo

(1998) and Osadebe (2001). This problem has made it necessary to present domains of behaviour and learning outcomes for investigation as teachers use them for assessment. These domains include cognitive, affective and psychomotor.

There are six levels of the cognitive domain of the taxonomy of educational objectives as pointed by Bloom (1956). These are arranged from the simple to the most complex. These include Knowledge, Comprehension, Application, Analysis, Synthesis and Evaluation. Each level is explained below.

1. Knowledge: Knowledge is defined as the remembering of previously learned material. This may involve the recall of a wide range of material from specific facts to complete theories, but all that is required is the bringing to mind of the appropriate information. Knowledge represents the lowest level of learning outcomes in the cognitive domain. At the end of instruction students should be able to define, describe, identify, label, list, match, name, outline, reproduce, select and state.

2. Comprehension: Comprehension is defined as the ability to grab the meaning of material. This may be shown by translating material from one form to another (words to numbers), by interpreting material (explaining or summarising), and by estimating future trends (predicting consequences or effects). These learning outcomes step beyond the simple remembering of material, and represent the lowest level of understanding. At the end of instruction, the learner should be able to convert, defend, distinguish estimate, explain, extend, generalise, give example, infer, paraphrase, predict, rewrite and summarise.

3. Application: Application refers to the ability to use learned material in new and concrete situations. This may include the application of such things as rules, methods, concepts, principles, laws and theories. Learning outcomes in this area requires a higher level of understanding than those under comprehension. At the end of the instruction, a learner should be able to change, compute, demonstrate, discover, manipulate, modify, operate, predict, prepare, produce, relate, show, solve, and use.

4. Analysis: Analysis refers to the ability to break down material into its component parts so that its organisational structure may be understood. This may include the identification of the parts, analysis of the relationships between parts, and recognition of the organisational principles involved. Learning outcomes here represent a higher intellectual level than comprehension and application because they require an understanding of both the content and the structural form of the material. At the end of the instruction, the learner should be able to break down diagram, differentiate, discriminate, distinguish, identify, illustrate, infer, outline, point out, relate, select, separate, and subdivide.

5. Synthesis: Synthesis refers to the ability to put parts together to form a new whole. This may involve the production of a unique communication (theme or speech), a plan of operations (research proposal), or a set of abstract relations (scheme for classifying information). Learning outcomes in this area stress creative behaviour, with major emphasis on the formulation of new patterns or structures. At the end of instruction, the learner should be able to categorize, combine, compile, compose, create, devise, design, explain, generate, modify, organize, Plan, rearranges, reconstruct, relate, reorganize, revise rewrite, summarise tell, and write.

6. Evaluation: Evaluation is concerned with the ability to judge the value of material (statement, novel, poem, research report) or a given purpose. The judgments are to be based on definite criteria. These may be internal criteria (organization) or external criteria (relevance to the purpose) and the student may determine the criteria or be given them. Learning outcomes in this area are highest in the cognitive hierarchy because they contain elements of all of the other categories, plus conscious value judgments based on clearly defined criteria. At the end of the instruction the learner should be able to appreciate, compare, conclude, contrast, criticize, describe, discriminate, explain, justify, interpret, relate, summarize and support.

There are five levels of affective domain: These include receiving, responding, valuing organization and characterization by a value or value complex (Krathwohl, 1964).

1. Receiving: Receiving refers to the student's willingness to attend to particular phenomena or stimuli (classroom activities, textbook, music, etc). From a teaching standpoint, it is concerned with getting, holding, and directing the student's attention. Learning outcomes in this area range from the simple awareness that a thing exists to selective attention on the parts of the learner. Receiving represents the lowest of learning outcomes in the affective domain. At the end of the instruction the learner should be able to ask, choose, describe, follow, give, hold, identify, locate, name, point to, select, sit, erect, reply and use.

2. Responding: Responding refers to active participation on the part of the students. At this level, they not only attend to a particular phenomenon but also react to it in some ways. Learning outcomes in this area may emphasize acquiescence in responding (reads assigned material), willingness to respond voluntarily (reads beyond assignment) or satisfaction in responding (reads for pleasure or enjoyment). The higher levels of this category include those instructional objectives that are commonly classified under "interests" That is, those that stress the seeking out and enjoyment of particular activities. At the end of the instruction the learner should be able to answer, assist, Compile, conform, discuss, greet, help, label, perform, practice, present, read, recite, report, select, tell and write.

3. Valuing: Valuing is concerned with the worth or value a student attaches to a particular object. Phenomenon

or behaviour. This ranges in degree from the more simple acceptance of a value (desires to improve group skills) to the more complex level of commitment (assumes responsibility for the effective functioning of the group). Valuing is based on the internalization of a set of specified values, but clues to these values are expressed in the student's overt behaviour. Learning outcomes in the value are clearly identifiable, instructional objectives that are commonly classified under "attitudes" and "appreciation" would fall into this category. At the end, the learner should be able to complete, describe, differentiate, explain, follow, form, initiate, invite, join, justify, propose, read, report, select, share, study, and work.

4. Organization: Organization is concerned with bringing the building of an internally consistent value system. Thus the emphasis is on comparing, relating and synthesizing value. Learning outcomes may be concerned with the conceptualization of a value (reorganizing the responsibility of each individual for improving human relations) or with the organization of a value system (developing a vocational plan that satisfies his need for both economic, security and social service). Instructional objectives relating to the development of a philosophy of life that would fall into this categories. At the end of the instruction, the learner should be able to adhere, alter, arrange. combine. compare. Complete, defend. Explain, generalise, identify. Integrate, modify, order, organise, prepare relate and synthesis.

5. Characterization by a Value or Value Complex: 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 have developed a characteristic "life style". Thus the behaviour is perverse. Consistent, and predictable. Learning outcomes at this level cover a broad range of activities, but the major emphasis is on the fact that the behaviour is typical or characteristics of the student. Instructional objectives that are concerned with the student's general patterns of adjustment (personal, social, emotional) would be appropriate here. At the end of the instruction the learner should be able to act, discriminate, display, influence, listen, modify, perform, practice, propose, qualify. Question, revise, serve, solve, use and verify.

There are six levels of the psychomotor domain. These include: perception, set, mechanism, complex overt response, adaptation origination.

It is an aspect of behaviour that shows how a learner makes use of the body for educational purpose. This includes, handwriting, playing football with the leg and other physical activities. There are different models of psychomotor domain. Ukwuije (1996) and Kpolovie (2002) presented the model of Simpson as follows:

Perception: The first level is concerned with the use of sense organs to obtain cues that guide motor activity. This category ranges from sensory stimulation (awareness of a stimulus), through cue selection (selecting task-relevant cues), to translation (relating cue perception to action in a performance).

Set: Set refers to readiness to take a particular type of action. This category includes mental set (mental readiness to act), physical readiness to act and emotional set (willingness to act). perception of cues serve as an important prerequisite for this level. Guided Response: Guided response is concerned with the early stages in learning a complex skill. It includes imitation (repeating an act demonstrated by the instructor) and trial and error (using a multiple response approach to identify an appropriate response). Adequacy of performance is judged by an instructor or by a suitable set of criteria.

Mechanism: Mechanism is concerned with performance acts where the learned responses have habitual and the movements can be performed with some confidence with performance skills of various types, but the movement patterns are less complex than at the next higher level.

Complex Overt Response: Complex overt response is concerned with the skillful performance of motor acts that involve complex movement patterns. Proficiency is indicated by a quick, smooth accurate performance, requiring a minimum of energy. This category includes resolution of uncertainty (performing without hesitation) and automatic performance (movements are made with ease and good muscle control). Learning outcomes at this level include highly coordinate motor activities.

Adaptation: Adaptation is concerned with skills that are so well developed. The individual can modify movement patterns to fit special requirements or to meet a problem situation.

Origination: Origination refers to the creating of new movement patterns to fit a particular situation or specific problem. Learning outcomes at this level emphasize creativity based upon highly developed skills.

Harrow (1972) emphasized six levels of psychomotor domain. The levels are hierarchical, making the first level reflex and the last level creative. These include reflex movement, fundamental movement, perceptual ability, physical ability, skilled movement, and non-discursive communication. At the end of instruction the learner should be able to assemble, build, calibrate, change, clean, compose, connect, create, design, dismantle, drill, fasten, fix, follow, grind, grip, crawl, hammer, heat, hook, identify, locate, make, manipulate, mend, mix, nail, paint, sand, saw, sharpen, set, sew, sketch, start, stir, use, weigh and wrap. Cognitive, affective and psychomotor domains of behaviour are interrelated. A learner may exhibit all the forms of behaviour during and after an instructional process. Various techniques are needed to assess the learners behaviour. These techniques include test, observation, oral question, anecdotal record. Questionnaire, sociometry, interview, etc. Information collected with; these assessment techniques are used for decision making.

Research Questions

The following research questions were answered

- (1) What is the extent of teachers' assessment of students' learning outcomes?
- (2) What is the extent of male and female teacher's assessment of students' learning outcomes?

Hypothesis

The null hypothesis below was tested at .05 level of significance.

Ho1. There is no significant difference between male and female teachers assessment of students learning outcomes.

Method

The study considered the extent teachers assess students' learning outcomes in the classroom during and after teaching any given topic from a subject curriculum. Learning outcomes are those objectives students demonstrate as evidence of good teaching and learning. Thus, at the end of a lesson, the students should be able to define, discuss, express emotion, feeling and show skills of writing, drawing among others on a topic taught. This could be achieved through assessment.

A sample of 1000 teachers was randomly selected using stratified random sampling technique based on the sex of teachers (500male and 500 female). The instrument used to obtain information is a questionnaire. It has face and construct validity. A reliability coefficient of 0.81 was obtained through the use of Cronbach Alpha method as a measure of internal consistency. The researcher also recruited research assistance to help monitor the teaching and learning in the classroom. This in addition helps to obtain valid and reliable data. The researcher observed how teachers use questioning method and observation to ensure effective teaching and learning. This assessment is formative and would help the teacher to monitor learning progress. The second was to find out whether or not teachers give test or class assignment to cover the objectives of the topic taught. This serve as classroom summative assessment in a given topic. This would help the teacher to determine the extent of students' achievement or performance in their learning outcomes on a given topic in the classroom. Students' good performance is an indication of good classroom teaching and learning.

Percentage was used to answer the research questions while Z-test was used to test the hypothesis at .05 level of significance. A bench mark of 0-49 was considered as low while 50-100 as high. This helped to determine the extent of teachers assessment of students classroom learning outcomes.

Result

The research questions for the study were answered and the hypothesis tested at .05 level of significance.

Table 1. Percentage analysis of teachers' classroom assessment

No of teachers	No that applied assessment in classroom teaching	No that did not apply assessment in classroom teaching	Percentage of teachers that applied assessment in classroom teaching	Percentage of teachers that did not apply assessment in classroom teaching
1000	319	681	31.9	68.1

The above table 1 showed that out of the 1000 teachers investigated in the study only 319 teachers representing 31.9% assess their students learning outcomes during and immediately after teaching the students in the classroom. Then 681 or 68.1 % do not assess their students during and immediately after teaching a topic in a given subject curriculum. The bench mark of the study is 0-49 percentage as low and 50-100 as High. The percentage of teachers assessing students learning outcomes during and immediately after classroom assessment is low. The result revealed that most teachers do not assess students learning outcomes.

Table 2: Percentage analysis of male and female teachers' classroom assessment of students learning outcomes.

Sex	N	No of teachers that applied assessment in classroom teaching	No that did not apply assessment in classroom teaching	Percentage of teachers that applied assessment in classroom teaching	Percentage of teachers that did not apply assessment in classroom teaching
Male	500	198	302	39.6	60.4
Female	500	205	295	41.0	59.0

The above table 2 indicates that 39.6% of male teachers applied assessment in classroom teaching while 41% of female teachers applied assessment in classroom teaching. The extent of classroom assessment by teachers is low compared to the bench mark of 0-49%. The percentage of male teachers who did not apply assessment in classroom teaching is 60.4 while the percentage of female teachers is 59. Generally, most teachers do not assess students' classroom learning outcomes during and immediately after learning.

Table 3: Chi-Square analysis of male and female teachers classroom assessment.

Sex	No of teachers Assessment		Total	Df	Calculated X ² -value	Critical X ² -value	Decision
	Assessment Applied	Assessment Not applied					
Male	198(201.5)	302 (298.5)	500	1	0.2	3.84	Accept
Female	205 (201.5)	295 (298.5)	500				
Total	403	597	1000				

The above table 3 shows that the calculated χ^2 -value of 0.2 is less than the critical χ^2 -value of 3.84 at 0.05 level of significance. Therefore, the null hypothesis was accepted. The result maintains that there is no significant difference between male and female teachers assessment of students learning outcomes. The extent of teachers assessment of students learning outcomes was low.

Discussion

The result showed that the extents of teachers assessment of students learning outcomes was low. This applied to both male and female teachers. The result also revealed that there was no significant difference between male and female teachers assessment of students learning outcomes. The findings are similar to the work of Osadebe (2013) that most teachers do not assess students due to lack of preparation. A teacher who has no objectives would have nothing to assess in terms of students learning outcomes. Assessment helps to achieve the objective set by the teacher before teaching any topic. Therefore, during, and at the end of class lesson, students should be able to answer questions in form of oral or written on any topic taught by the teacher. It was observe that some teachers do not assess students learning outcomes because they are not professional. It should be noted that teaching is a profession, and only those who have the professional background should be allowed to teach. On male and female teachers, proper training was required(Courtright, Postlethwaite, McCormick, Reeves & Mount, 2013). When teachers do not assess students during and immediately after teaching and learning, it contradicts Christensen (2013) assessment innovation that assessment should be continuously carried out by teachers to determine students learning outcomes.

Conclusion

The study was carried out to determine the extent to which teachers assess students classroom learning outcomes in the areas of cognitive, affective and psychomotor domains of behaviour. The various behavioural objectives in the domains of behavior were identified and discussed. Teachers are expected to assess students' classroom learning outcomes for every topic taught from given subject curriculum. Assessment should be in form of test or questions (oral, written or practical), observation interview, questionnaire among others. These are instruments or techniques the teachers should use always to obtain data about students behaviour upon which judgement is made. Assessment ensures successful teaching and learning.

The study was carried out with questionnaire and observation. The teachers were observed during the teaching and learning periods to determine whether or not teachers assessed students learning outcomes. The result showed that most of the teachers did not assessed students learning outcomes. The extent of students' classroom assessment of learning outcomes was low. Therefore, this calls for urgent concern that all teachers should be professional and always assess students' classroom learning outcomes. There should be regular training or seminar on assessment.

Recommendations

The following recommendations were made from the study:

1. Teachers and other educators should always consult the domains of behaviour as contained in the taxonomy of educational objectives. Instructional objectives should be drawn in line with each domain of behaviour. The objectives should reflect the desired learning outcomes in the three domains.
2. The assessment procedures of formative, and summative should be observed during the teaching and learning process. This will ensure good learning outcomes at the end of instruction. The various assessment techniques should also be used to determine learning outcomes. These techniques include test: observation, questionnaire, anecdotal record, oral questions, interviews among others. Information obtained should be analyzed upon which judgement is made.
3. Professional teachers should be made to teach the students and should be attending seminar for updates about assessment. Teachers who have no professional background should be encouraged to do so.
4. Inspectors and supervisors from Ministry of Education should regularly visits schools to observe and update teachers' assessment of students' learning outcomes. This will help to support the principal or Head of school supervisory role.

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