

Assessment of Tertiary Teachers' Capacity Development Need in Test Item- Writing: A Case Study of Dual Mode Institutions in the West African Sub-Region

Charity A. Okonkwo
School of Education
National Open University of Nigeria
14/16 Ahmadu Bello Way, P.M.B. 80067
Victoria Island, Lagos
caeokonkwo@yahoo.co.uk

&

Ursula N. Akanwa
Department of Science Education
College of Agricultural & Science Education
Michael Okpara University of Agriculture Umudike
P. M. B. 7267
Umuahia, Abia State, Nigeria
sisngoakanwa@yahoo.com

Abstract

One approach to the measurement of the quality of learning is the use of scores on standardised national or international tests or examinations when they are available as a measure of the quality of education. This study therefore examined tertiary teachers' capacity development need in the test item-writing necessary for enhancing assessment practices for quality education. The study employed a descriptive analytical research design. Data were collected from a sample of thirty-four participants at a train-the-trainer workshop for tertiary teachers in the West African sub-region on course material development for open and distance learners. The instrument used for data collection consisted of self-assessment exercises on test item writing requiring the participants to self-describe/assess their level of assessment literacy pertaining to two general categories of test items - construction of essay test items requiring higher order thinking skills and objective test items. The self-assessment exercises were developed as source

book content derived from standards developed by the National Centre for Research and Evaluation, Standards and Student Testing (Clay, 2001) and were adopted and used for data collection in this study. Five objectives and three research questions guided the study. The data collected in respect of the research questions were analysed using descriptive statistics - frequencies and percentages. The findings indicated the areas of need for the tertiary teachers' capacity development in test item-writing. The needed professional development is necessary to enable the results from their test items used for measurement purposes to reflect the quality of learning. Recommendations were made for improvement and for continuing capacity building and enhancement of tertiary teachers on test item-writing.

Keywords: Teachers' capacity development, assessment, test item- writing, ODL

Introduction

“Everyone has the right to education” (United Nations, 1948, Article 26). This right was enshrined in the Universal Declaration of Human Rights over sixty years ago. Therefore, many countries are making concerted efforts to ensure that all people have the opportunity to be educated, a target in line with the Education for All (EFA) and Millennium Development Goals (MDGs), both of which placed emphasis on the issue. This effort is exemplified in the modern adoption and deployment of open and distance learning delivery systems in Nigeria to fulfill the nation's commitment to provide education for all, within the context of reaching the World Forum on Education for All (EFA) goals by 2015 (Okonkwo, 2012). The authors can categorically infer that other countries in the West African sub-region are also in this global race. The substantial efforts several governments have made to achieve EFA and MDGs have led to a significant increase in the number of children attending primary and secondary schools in developing countries (Wright and Reju, 2012). Many African countries have invested heavily in education because it is widely accepted as a leading instrument for promoting economic growth (Bloom, Canning and Chan, 2006). Nigeria and other West African subregions are not exceptions.

The National Open University of Nigeria (NOUN), the premier Open and

Distance Learning (ODL) university in the country, was established to widen access to all (Okonkwo, 2012). The university is also the Commonwealth of Learning' (COL) Regional Centre for Training and Development in Open and Distance Learning (RETRIDAL). RETRIDAL is responsible for the raining and development of professionals in open and distance learning. The backbone of instructional delivery in open and distance learning is the self- instructional materials. No distance learning higher institution can succeed without quality self-instructional materials which are usually driven by its staff. Nominees, teachers from tertiary or higher institutions within the West African sub-region, namely Ghana, Sierra Leone, Gambia and Nigeria were invited and trained for developing knowledge, attitude and skills in writing self- instructional materials in open and distance learning having realised that quality self- instructional materials, be it manual or electronic, determines to a large extent the quality of teaching and learning that take place in distance learning institutions (Tenebe, 2013). He reiterates that “quality self- instructional materials remain the backbone for effective and efficient operations of any ODL or dual mode institution and are germane to the development and sustenance of open and distance learning system of education. Thus, to have quality self- instructional learning materials, the course material developers must be well-trained in the art of developing self- instructional learning materials (and assessment is a significant component if self-instructional materials).

The measurement of quality of learning is a very critical part of learning stem and learner's assessment is a major part of the learning process. A key function of any educational measurement is to reflect the quality of learning as well as the efficiency of its process. These presume that the teachers entrusted with the very important role of assessing students learning outcomes must be knowledgeable enough in the test item-writing demands "ceded to obtain quality assessment results from the learners being assessed. Okoli (2013) opined that the definition of quality of learning is problematic and its measurement difficult. He identified two approaches for measuring the quality of learning. These approaches according to Okoli (2013) were to use scores on standardised national or international tests or examinations when they are available as a measure of education quality; to proxy schooling quality by the level of school resources especially in terms of teaching and learning facilities. In these cases, quality essentially suggests conformity with expectations on a consistent basis. If the results from standardised tests

and examinations are to reflect the quality of learning in our educational system following this view of quality, then, the educators responsible for test items- writing are to be assessment- literate and sound in the practice for the process of assessment to produce the desired quality of learning which certainly leads to quality of education. Teachers, according to Frey (2005), spend more than one-third of their professional time assessing learning outcomes. This is done to ascertain whether the stated instructional objectives have been attained. A teacher monitors the effectiveness of the classroom teaching through assessment to ensure that students are learning what they should learn. Close monitoring of learning can only be done when valid and reliable feedback is given to teacher through the use of good assessment tools such as teacher made test (Imo, 2010) which means that every teacher ought to use and be competent in constructing good instruments for classroom assessment. Some of the reasons for assessing students' performance are that: We live in a society where people are appointed and employed on the basis of their qualifications; students themselves need feedback to help them know the progress of their learning; we need feedback on the progress of learning so that we can adjust and develop our teaching; assessment is often a major driving force which gets students down to serious studying (Race, n. d).

Test items refer to tasks and/or questions that are used to construct tests and examinations. This is so defined because items are not necessarily in question format and are sometimes independent of one another. On the other hand, the range of techniques involved in preparing the items is referred to as item writing. It draws attention to the separate skills, abilities or pieces of knowledge which make up human learning. The test item writers consider what happens when these items achieve importance by having been grouped or combined as building blocks with other items to form a test instrument; the larger whole (Withers, 2005). Withers (2005) opined that some intellectual processes are required of a test writer as well as organisational structures to assist the work and that the needed knowledge derives directly from professional experiences as teachers or educators. Hence, when the required intellectual processes are not adequately manifested to the threshold of writing quality items, the shortcomings should be augmented via continuing professional development. This study assessed tertiary teachers' participating at the 'train- the- trainers workshop' capacity development need in test item- writing in view of the foregoing and in response to the need to

enhance assessment practices to ensure quality in education.

It is naturally assumed that anyone appointed to a teaching post in higher education can automatically teach and should also be able to assess their students' work. But experience in the field had shown that many teachers in higher education wield their red pens for the first time without ever having any real training on how to assess. Many are embarrassed at the notion of even asking for any guidance. This observed trend according to Race (n.d) is because assessment tends to be a private and intimate affair. Besides, teachers were rarely monitored as they go about designing and implementing assessment. This trend is unlike teaching which is like a public affair in which feedback of all sorts regarding how well or how badly teachers teach are readily obtained. This assumption on the ability of tertiary teachers to teach and equally be able to assess is not entirely true. Hence, there is a need for capacity building in these fundamental roles of teachers. Teaching and assessment combine to form a twin factor that determines the quality of scholastic activities in learning institutions (Jimoh, 2010), yet. it has been observed that one of the inherited problems in the African educational system is its assessment systems that emphasise the regurgitation of facts - rote learning divorced from application to the realities of life (International Institute for Capacity Building (IICBA, 2002). Our assessment techniques and items seem to follow the same old traditional ways. The technique most commonly employed is the essay, which appears easy to set but difficult to mark. Pieces of work of similar standard can be awarded different marks in different institutions or by different markers even in the same institution. Such differences could be traceable to the examiners' background (Jimoh, 2010). This implies that assessment does not only assist in improving teaching and learning but also ensures its quality. Students as valid citizens should be better prepared to meet future academic and business challenges by enhanced assessment practices capable of providing valid evidence of students' capabilities to the stakeholders (Khaahloe, 2010). It is obvious that assessment of students' achievements is subject to several challenging and emerging socio-economic factors worldwide and that these factors hit hard on the quality of assessment practices (Lewis and Smith, 1994). Nevertheless, tertiary teachers' capacity development need in test item writing cannot be overlooked because it contributes immensely to the quality of learning - education. Marso and Pigge (1993) carried out some studies that investigated teachers' knowledge on assessment and they came to the

conclusion that teachers need instructions in classroom assessment.

Imo (2010) carried out a study to find out the effect of training and retraining of Physics teachers in test construction on the quality of their teacher-made tests for classroom assessment and the extent to which such effects will improve the students' performance in the subject. The findings show that teacher-made Physics tests are of low quality. The tests did not cover adequately the content and most items assessed knowledge level whereas Physics which is taught only at the senior secondary schools should assess more of the higher cognitive levels. He observed that rules of item-writing were not adequately adhered to. These confirmed the findings of Frey et al (2003), Okonkwo and Okonkwo (2008) that teacher-made tests have a number of flaws. Such low-quality tests cannot give teachers the correct feedback that can help them to monitor learning effectively or tell when students are having problems and need remediation. Imo' (2010) study revealed that the response of teachers to training need assessment also confirmed their need in the area of test construction. He recommends based on the result of his study that regular training and retraining programmes should be done for teachers to help them gain competence in construction of assessment tools and in other areas of assessment. This brings to fore the need for training of tertiary teachers in assessment procedures.

Statement of the Problem

Research indicates that teachers tend to use tests that they have prepared themselves much more than any other type of test (NCATE, 2000). But, many teacher -made tests which are the most commonly used instruments for classroom assessment are said to have a number of flaws (Frey, Person, Edward, Pedrotti and Peyton, 2003; Okonkwo & Okonkwo, 2008) like low content validity, assessment of mainly lower cognitive objectives and violation of item-writing rules (Valentin and Godfrey, 1996; Frey et al, 2003; Okonkwo and Okonkwo, 2008). Most classroom educators rely on text and curriculum -embedded questions and tests that are overwhelmingly classified as paper-and-pencil (National Commission on Teaching and American's Future, 1996). All these make it difficult for quality assessment to take place in the classroom. Despite the research findings, formal training in paper-and-pencil test construction may occur at the pre-service level (52% of the time) and a significant number of professional educators (48%) report

on formal training in developing, administering, scoring and interpreting (Education Week “National Survey of Public School Teachers, 2000). Often times, many teachers have the task of constructing tests but have relatively little training or information to rely on in this task (Clay, 2001). Given the importance of assessment in enhancing the quality of education, responsible for assessment practices ought to be significantly knowledgeable in the rudiments of test item- writing. This will go a long way to ensuring that students learning outcomes demand undertaking by them to a large extent are valid and reliable and in turn ensure quality of education.

Hence, the purpose of the study is to determine the capacity building need of tertiary teachers responsible for developing self-instructional materials for even and distance learners in test item- writing. This is needed because test items constitute a major component of the self-instructional materials and cannot be overlooked. Besides, the quality of test items contributes effectively to the quality of education.

Enhancement of tertiary teachers' capacity in test item-writing is one of the ways in which the flaws inherent even in the most ideal measurement system can be managed if not eliminated. It is obvious that the primary responsibility for assessment continues to rest with teachers despite its importance. Even with the best of intentions, external examiners and moderators can only contribute a limited amount to the process of assessment. The centrality of assessment to student's experience cannot be over emphasised rather it is widely acknowledged (Brown. 2005). “Assessment frames learning, creates earning activity and orients all aspects of learning behaviour” (Gibbs, 2006: 23). For most students, assessment requirements literally define the curriculum. Assessment is therefore a potent strategic tool for tertiary teachers with which to spell out the learning that will be rewarded and to guide students into effective approaches to study. Equally, poorly designed assessment has the potential to hinder learning or stifle curriculum innovation. Assessment is a central element in the overall quality of teaching and learning in higher education because well designed assessment sets clear expectations, establishes a reasonable workload and provides opportunities for students to self-monitor, rehearse, practice and receive feedback (AUTC, 2002). The authors of this paper, based on the foregoing argument, assessed tertiary teachers' capacity development need in test item- writing to ascertain whether teachers entrusted with the noble role of teaching and assessing students are adequately prepared as professionals in the demands of

assessment practices that could lead to improved quality of education. Also, to make vital recommendations that will enhance the assessment process based on their findings. The objective of taking the participants through the rudiments of developing self-instructional learning materials cannot be met if the participants are not adequately equipped in the art of assessment of learning outcomes. Hence, the assessment of the participants' capacity development need in test item- writing at the workshop. The theme of the workshop was 'train- the- trainers workshop.' It was aimed at widening the horizon of this training by the participants' replicating it in their respective higher institutions; to academic staff, who will be involved in course material development in ODL systems of education but do not have the opportunity to be at the workshop for the training. This objective would not be met if the trainee trainers are not literate in the art of assessment because they cannot impart knowledge, expertise and skills which they lack. In sum, self-learning materials cannot be rip-off of assessment questions because assessment questions are provided the learners with feedback that reinforces their learning. Therefore, the study is guided by these research questions.

Research Questions

1. What are the achievement levels of the participants on applications of principles of test item- writing?
2. How do the participants perform in the different content areas of test item- writing as measured by the self-assessment exercises?
3. What are the capacity development needs of the participants in test item-writing?

Conceptual/Theoretical Framework

Assessment is the process of documenting, often times in measurable terms, knowledge, skills, attitudes and beliefs. It is often used in educational context especially in determining the quality of learning outcomes, quantifying or describing information about performance. Assessments should be valid and reliable to properly assess the learning outcomes upon which the assessment is based. Other considerations such as practicality, fairness and authenticity are also important. A test on the other hand is an instrument used to measure a test-taker's knowledge, skill, aptitude, physical fitness, or classification in

many other topics. According to Zimmaro (2010), it is a method used to measure the level of achievement or performance. Hence, assessment is a central element in the overall quality of teaching and learning and an integral component of a coherent educational experience.

The challenges of teaching have certainly not stood still. Teaching students today is very different from the previous generations' (Ontario Education, 2004). There are much higher expectations by students, families and society. Students need to know more than ever before to succeed. Like never before, there is a broader diversity of students, both culturally and in terms of how they learn. Our proposed underlying principle for teacher development is that continuing professional development (CPD) will ensure that teachers at all times are up-to-date as professionals and at all times be respected as professionals, deserving the same respect as other professionals.

Continuing professional development (CPD) is the means by which people maintain their knowledge and skills related to their professional lives. FEAN I (n. d.) define CPD as the acquisition of knowledge, experience and skills, as well as, the development of personal qualities. It contains both the acquisition of new skills; broaden competence, and the enhancement of existing skills to keep abreast of evolving knowledge. It consists of any educational activity which helps to maintain, develop or increase knowledge, problem-solving, technical skills or professional performance standards all with the goal that the benefactors (educators) are reinforced in all dimensions of good service delivery (teaching throughout a teacher's career). It ensures professional growth and improvement on the job practice by improving individual's skills and capability that influences their effectiveness and quality. In this case, enhancement of knowledge and skills are needed for item-writing for learning outcomes assessment. CPD for teachers is intended to support teachers and to equip them with the skills and knowledge required to keep pace with the rapidly changing educational and professional environment. Its opportunities should address developmental needs, maximise strengths and enable teachers meet the challenges of teaching in the 21st century. The backbone of instructional delivery in open and distance learning is self-instructional materials. Consequently, tertiary teachers engaged in dual mode institutions and are involved with the education of the distance learners are to be knowledgeable in the art of developing self- instructional materials because no distance learning higher institution can

succeed without quality self-instructional materials which are usually driven by its staff. Item-writing is a major component of the instructional material for distance learning.

Methodology

Research Design

The study employed a descriptive analytical research design. It is the analytical study of focused group of tertiary teachers from dual mode institutions (i.e. institutions offering instructional delivery using the conventional face- to -face and the open and distance learning modes) in the West African sub-region attending workshop on instructional material development for open and distance learners. This group was used because item-writing was a major component of the course material for distance learners. It is therefore very vital that the participants should be very competent in the rudiments of item-writing to be able to incorporate well-articulated assessment items in the course materials. These items are to be used in assessing learners both formatively and summatively as expected in open and distance learning scenarios.

Population and Samples

The population consists of focused group of academic staff from tertiary institutions in the West African sub-region practising instructional delivery by both the conventional approach and open and distance learning approach (dual mode). These academics were drawn from twelve tertiary institutions in four countries of West African sub-region namely Nigeria, Ghana, Gambia and Sierra Leone to attend train-the-trainers workshop on instructional material development for open and distance learners. The workshop was sponsored by the Commonwealth of Learning (COL) and was organised and hosted by the COL Regional Centre for Training and Development of professionals in open and distance learning (RETRIDAL), established in National Open University of Nigeria (NOUN). The sample consisted of forty academic staff from the four countries directly involved with the development of self-instructional materials for distance learners. Out of the forty participants thirty-four responded to the self-assessment exercises. The thirty-four respondents consisted of twenty males and fourteen females. They had varied amounts of teaching experience, ranging from one to twenty-eight years in tertiary teaching and one to five years' experience in open and

distance learning as graduate lecturers. They are between the ranks of lecturer II to associate professor. These same participants were used for the study because the self-instructional course materials cannot divulge assessment. Rather, assessment is a major component of the self-instructional materials for open and distance learners.

Research Instrument

The instrument consists of self-assessment exercises on test item-writing requiring the participants to self-describe/assess their level of assessment literacy pertaining to five broad areas including two general categories of test items - construction of essay test items requiring higher order thinking skills and objective test items. These areas are mostly the focus of assessment in open and distance learning. These forms of test items are usually embedded in the self-instructional material for open and distance learners to be developed by these participants. The self-assessment exercises used as instrument for data collection in this study were originally developed as source book content derived from standards developed by the National Centre for Research and Evaluation, Standards and Student Testing (Clay, 2001). The exercises were developed and used for capacity building workshop on writing effective test questions. The instrument was considered reliable and adequate for the purpose for which they were used for by the researchers who are also experts in test and measurement. Hence, the instrument was adopted without modification for the present study.

Data collection

The self-assessment exercises were administered at one of the sessions of the workshop preceding the session on assessment in open and distance learning component of the workshop. The participants were required to individually assess themselves on their levels of capacity in test item-writing by responding to the items of the self-assessment exercises. The exercise actually generated stimulating discussion on test item-writing. The discussion led to a call for another workshop on test item-writing alone. Thirty-four participants responded to the self-assessment exercises out of the forty participants that attended the workshop and to whom the test exercises were administered.

Analysis of Data

The data collected with the instrument - the self-assessment exercises were analysed using SPSS 16. The analyses are descriptive, consisting of either determination of the percentages of responses to items in the various sections of the self-assessment exercises consisting of right and wrong answers, or both a determination of mean percentage, standard deviation and variance for given sections. These forms of analyses were considered adequate by the researchers. Since the objective of the study was to determine the capacity building need of the participants; and by extension, tertiary teachers. The cutoff point for the acceptance of responses to the research questions with percentages only was set at 55%. The 55% cutoff point served as bench mark for acceptance of participants' achievement level to a given item because it is above average and is therefore meaningful. Thus, any achievement of 55% and above was accepted as favourable. This condition applied to research question 1. The data were further analysed by computing the mean, standard deviation and variance for each of the five sections of the test item- writing exercises content areas. This was done in order to take informed decision on the participants capacity building needs in the various sections identified. Thus, the researchers also choose a mean cutoff point of 5.00. Hence, any section of the test item- writing self-assessment exercises with a mean cutoff point of 5.00 was considered significant and accepted while any section in which participants scored less than mean of 5.00 was not accepted as significant. This cutoff point was chosen because the test item self-assessment exercises (SAE) were scored out of a total of 9 marks for SAE 1 - SAE 3; 10 marks for SAE 4 and 12 marks for SAE 5. Therefore, any mean score of below 5.00 in any of the five sections is considered to be meaningless in enhancing quality test construction of the test items writers in that section by the authors. This bench mark is used because it is above average performance. In other words, the researchers opined that the participants as teachers responsible for assessing students learning outcomes are to be knowledgeable enough in the test item- writing demands needed to obtain quality assessment results from the learners being assessed. However, the variance (S^2) and Standard Deviation (SD) were also presented to show how the individual raw scores from which the mean was computed were dispersed or scattered about the mean. Further deductions were made from the results to actually pinpoint the areas of capacity development needs of the participants.

Results and Discussion

The results of the data analyses are presented in the tables that follow and discussed thereafter the presentation. The tables show a summary of the research questions dealing with the various sections of the study.

Research Question 1: What are the achievement levels of the participants on applications of principles of test item- writing?

Table 1: Participants Level of Achievement in the Two Categories of Test Items - Objective Items and Subjective (Essay) Item-Writing Self-assessment Exercise (SAE 1)

S/N	Item	Right		Wrong		Total	
		N*	%*	N	%	N	%
1	Essay exams are easier to construct than are objective exams.	25	73.53	9	26.47	34	100
2	Essay exams require more thorough student preparation and study time than objective exams.	5	14.71	29	85.29	34	100
3	Essay exams require writing skills where objective exams do not.	29	85.29	5	14.71	34	100
4	Essay exams teach a person how to write.	8	23.53	26	76.47	34	100
5	Essay exams are more subjective in nature than are objective exams.	25	73.53	9	26.47	34	100
6	Objective exams encourage guessing more so than essay exams.	2	5.88	32	94.12	34	100
7	Essay exams limit the extent of content covered.	24	70.59	10	29.41	34	100

- 8 Essay and objective exams can be used to measure the same content or ability 22 64.71 12 35.29 34 100
- 9 Essay and objective exams are both good ways to evaluate student's level of knowledge. 31 91.18 3 8.82 34 100

***N = Number; % = Percentage**

Table 1 reveals that the participants' levels of achievement in the items of self-assessment exercise (SAE 1) relating to test item-writing in the two categories of test items - objective and subjective (essay) items ranged from 5.88% (item 6) to 91.18% (item 9). Three (3) out of the nine (9) items listed were rejected because the participants' levels of achievement in the items were below the benchmark of 55% while six (6) were accepted. However, a more critical look at the result showed the area of the participants' capacity building need that would further enhance their test item-writing ability. These areas are those relating to items numbers 2,4 and 6 respectively.

Table 2: Participants Level of Achievement in the Multiple-Choice Test Item- Writing Self- Assessment Exercise (SAE 2)

S/N	Item	Right		Wrong		Total	
		N	%	N	%	N	%
1	Multiple choice items provide highly reliable test scores because: __	23	67.65	11	32.35	34	100
2	You should __	14	41.18	20	58.82	34	100
3	The above multiple choice item is structurally undesirable because: __	5	14.71	29	85.29	34	100
4	The above multiple choice item is undesirable because: __	18	52.94	16	47.06	34	100
5	The right answers in multiple choice questions tend to be: __	5	14.71	29	85.29	34	100
6	When guessing on a multiple choice question with numbers in the answer: __	11	32.35	23	67.65	34	100

7	What is the process of elimination in a multiple choice question?___	19	55.88	15	44.12	34	100
8	What should you do when taking a multiple choice test:___	2	5.88	32	94.12	34	100
9	It is unlikely that a student who is unskilled in untangling negative statements will:___	11	32.35	23	67.65	34	100

***N = Number; % = Percentage**

Table 2 shows that the participants' level of achievement ranged from 5.88% (item 8) to 67.65% (item 1). The participants' achievement in SAE 2 - Multiple Choice test item- writing is not impressive. This is because multiple choice items are the items usually automated especially in assessment of large class sizes. Therefore, tertiary teachers are supposed to be well groomed in the art of writing multiple choice test items because of its relevance in assessment as is now the global trend.

Table 3: Participants Level of Achievement in the True-False Test Item-Writing Self -Assessment Exercise (SAE3)

Table 3:	Item	Right		Wrong		Total	
		N	%	N	%	N	%
1	Is it recommended to take statements directly from the text to make good true -false questions?	19	55.88	15	44.12	34	100
2	Two ideas can be included in a true false statement if the purpose is to show cause and effect	27	79.41	7	20.59	34	100
3	When a true -false statement is an opinion, it should be attribute to someone in the statement._	19	55.88	15	44.12	34	100
4	Underlining or circling answers is preferable to having the student write them.	25	73.53	9	26.47	34	100

5	Complex statements are used to measure higher order thinking	17	50.00	17	50.00	34	100
6	If negatives, such as “not”. Are used, they should be highlighted in some way. __	19	55.88	15	44.12	34	100
7	True and false statements should be approximately the same length.	17	50.00	17	50.00	34	100
8	There should be a recognizable pattern in the answers, such as TFTFTFTF. __	25	73.53	9	26.47	34	100
9	The following are examples of words that should be avoided:”all,” “none” “never”. “sometimes,” generally,” and “often”.	29	85.29	5	14.71	34	100

***N = Number; %= Percentage**

Table 3 signifies that the participants' achievement levels are accepted in seven (7) out of the nine (9) items of SAE 3. The participants achievement level ranged from 50.00% (items 5 & 7) to 85.29% (item 9). This result shows that the participants are very knowledgeable in test item-writing relating to True-False exercises. It should be noted, however, that True-False items cannot be really used for meaningful assessment at the higher levels of education objectives. But it is desirable that the participants should know the demands of test item- writing in the area.

S/N	Item	Right		Wrong		Total	
		N*	%*	N	%	N	%
1	A fill -in-the-blank question asks students to supply rather than the answer.	3	8.82	31	91.18	34	100
2	The main problem in constructing completion items is to limit the number of possible	14	41.18	20	58.82	34	100
3	Put blanks at the _____ of the _____	13	38.24	21	61.76	34	100
4	Completion items are faster to than _____ items because there are no alternatives to consider.	12	35.29	22	64.71	34	100

5	Make the _____ of equal length.	4	11.76	30	88.24	34	100
6	A direct _____ is often more	6	17.65	28	82.35	34	100
7	When doing fill -in-the-blank test items, read the _____ with the	0	0.00	34	100	34	100
8	Always concentrate on the of _____ blanks to fill in.	5	14.71	29	85.29	34	100
9	When you do not know the exact _____ provide a descriptive answer.	2	5.88	32	94.12	34	100
10	Scoring completion items is less than multiple choice or true - false because the student supplies the response.	1	2.94	33	97.06	34	100

***N = Number; % = Percentage**

Table 4 indicates the participants' levels of achievement in SAE 4 - Completion Items test item-writing self-assessment exercise. All the items included are rejected because the participants level of achievement do no reach up to the cutoff benchmark of 55%. Their achievement levels are very low and ranged from 2.94% (item 10) to 41.18% (item 2). This result is very surprising and highly revealing because the common trend of assessment especially for continuous assessment (formative assessment) purposes in our higher institutions of learning is the use of completion test items. But this result is telling us that the tertiary teachers used in this study are not knowledgeable in the writing of test items relating to completion items. Hence, there is real need for capacity building in this area of test construction if the result of assessment of learners assessed using this category of test items are to contribute in improving the quality of learning.

Table 5: Participants Level of Achievement in the Ability to Construct Essay Test Items Requiring Higher Order Thinking Skills Test Item- Writing Self-Assessment Exercise (SAE 5)

S/N	Item	Right		Wrong		Total	
		N*	%*	N	%	N	%
1	Essay items may begin with <i>modify</i> , <i>prepare</i> , or <i>solve</i> .	14	41.18	20	58.83	34	100
2	Essay items may begin with <i>define</i> , <i>label</i> , <i>outline</i> , or <i>state</i> .	18	52.94	16	47.06	34	100
3	Essay items may begin with <i>convert</i> , <i>predict</i> , or <i>estimate</i> .	4	11.76	30	88.24	34	100
4	Essay items may begin with <i>appraise</i> , <i>interpret</i> , or <i>criticize</i> .	12	35.29	22	64.71	34	100
5	Essay items may begin with <i>categorize</i> , <i>compile</i> , or <i>re-arrange</i> .	2	5.88	32	94.12	34	100
6	Essay items may begin with <i>diagram</i> , <i>illustrate</i> , or <i>separate</i> .	4	11.76	30	88.24	34	100
7	In the president's State of the Union Address, which statements are based on facts and which are based on assumptions?	2	5.88	32	94.12	34	100
8	How would you restructure the school day to reflect children's development needs?	2	5.88	32	94.12	34	100
9	Why is Bach's mass in B Minor acknowledged as a classic?	2	5.88	32	94.12	34	100
10	Calculate the deflection of a beam under uniform loading.	6	17.65	28	82.35	34	100
11	Summarise the basic tenets of deconstructionism.	3	8.82	31	91.18	34	100
12	List the steps involved in titration.	13	38.24	21	61.76	34	100

*N = Number; % = Percentage

The result in Table 5 specifying the levels of achievement of the participants in the ability to construct essay test items, requiring higher order thinking skills test item-writing (SAE 5) is very alarming and worrisome. The participants levels of achievement ranged from 5.88% (items 5, 7, 8 & 9) to

52.94% (item 2). The author’s worry is that essay test items instruments are the most common, highly favoured and a major instrument used in tertiary institutions for assessing students learning outcomes. Yet, the test givers (tertiary teachers) knowledge level in the test item-writing, the instrument for the assessment is at the lowest ebb. How then can their assessment be meaningful enough to contribute to the quality of learning? The result of the study calls for an emergency in capacity building of tertiary teachers in test item-writing demands relating essay test items. This assessment result supports the earlier argument (Race, n.d) that it is naturally assumed that anyone appointed to a teaching post in higher education can automatically teach and should also be able to assess their students' work. But experience in the field had shown that many teachers in higher education wield their red pens for the first time without ever having any real training on how to assess. This trend should not be and therefore ought to be gripped now by periodic capacity building for tertiary teachers in test item-writing in order that the result of their assessment should contribute meaningfully to improving the quality of education.

Research Question 2: How do the participants perform in the various content areas of the test item- writing as measured by the test items self-assessment exercises?

Table 6: Performance, mean (X), Standard Deviation (SD) and Variance (V) of the Participants in the different Content Areas in Test Item-Writing as measured by the Test Item- Writing Self- Assessment Exercises

S/N	Instrument (Test Item Writing Self -Assessment Exercise)	N	Sum	Mean (XI)	Standard Deviation (SD)	Variance (V)
1	Two categories of test items - Objective items and Subjective (or essay) items.	34	171.00	5.03	1.40	1.97
2	Multiple choice test items.	34	108.00	3.18	1.53	2.33
3	True-False test items.	34	195.00	5.74	1.68	2.81
4	Completion test item.	34	69.50	2.04	1.60	2.55
5	Ability to construct essay test item requiring higher order thinking skills.	34	86.00	2.53	1.97	3.89

Table 6 conveys the participants overall level of achievement in the five self-assessment exercises in test item-writing (SAE 1 - SAE 5). The overall result of their achievement is incredible. The participants mean achievement level ranged from 2.04 (SAE 4) to 5.74 (SAE 3). A closer look at the result showed that two (2) SAEs out of the five (5) SAEs were accepted while the other three (3) SAEs were rejected.

The accepted SAEs are SAE 1 -Two categories of test items - objective items and subjective (or essay) test items writing (mean = 5.03, SD = 1.40, V = 1.97); and SAE 3 - True - False test items writing (mean = 5.74, SD = 1.68), V = 2.81). On the other hand, the rejected SAEs are SAE 4 - Completion test items writing (mean = 2.04; SD = 1.60; V = 2.55); SAE 5 - Ability to construct essay test items requiring higher order thinking skills test items writing (mean = 2.53, SD = 1.97, V = 3.89), and SAE 2 - Multiple Choice test items writing (mean = 3.18, SD = 1.53, V = 2.33).

This result before us has expressed the inadequacy of the capacity of tertiary teachers in test item-writing in assessment for improving the quality of learning. This result support earlier research findings (Marso and Pigge, 1993; Frey et al., 2003; Okonkwo and Okonkwo, 2008; Imo, 2010; Jimoh, 2010) among others. All these results point to the need for training of teachers in test item-writing and tertiary teachers are not excluded in this call for capacity building. This is a call for positive intervention in the professional development of teachers as professionals and this cannot be overlooked or overemphasized if the assessments in the higher institutions of learning are to improve the quality of learning.

Research Question 3: What are the capacity development needs of the participants in test item-writing?

From the results of the analyses presented in research questions 1 and 2, the following capacity building needs of the participants were deduced.

1. Item 2: Self-Assessment Exercise 1

This item was based on eliciting from the participants their expertise on demand of essay versus objective test from the examinee. The result followed the general trend of thinking that one form of test item is better than the other. But, according to research findings (Clay, 2001), it is still undetermined

whether or not essay tests require or facilitate more thorough (or even different) student study preparation. What is necessary is that educators should have adequate capacity to develop standard test items in the various forms.

2. Item 4: Self-Assessment Exercise 1

It is also opined by educators that essay examination teaches a person how to write. But this is not true. Rather, essays can emphasise the importance of being able to communicate through writing. The inability of the participants to determine the desirable qualities of the item types reveals that they have a need for capacity building in writing items of this nature.

3. Item 6: Self-Assessment Exercise 1

The responses from the participants favoured essay items against the objective items. They viewed objective test items as encouraging guessing. The fact remains that objective items encourage guessing as much as essay items encourage well written bluffing. The result showed that they cannot effectively develop items that require higher order thinking skill. Although that cannot completely eliminate guessing and bluffing but can help to reduce them to minimal levels. The ability and skill to write higher order items requires well-articulated capacity building in test item-writing for one to be able to develop such skill in both objective and essay test items.

4. Self-Assessment Exercise 2: Multiple Choice Test Items

The participants responses on self-assessment exercise based on multiple choice items are simply alarming. It is alarming because in this digital age, assessment of students learning outcome is shifting from pen -on- paper to being technology- driven. The test instrument that is mostly used in computer- based assessment is mostly in the multiple-choice test format. Therefore, for open and distance learning, characterised by large class sizes, multiple choice items remain indispensable and as a result is technologically driven. An ideal multiple choice test item consists of item which identifies the question or problems and the response alternatives or choices. Usually, students are asked to select the one alternative that best completes a statement or answer a question. They are considered to be among the most versatile of all item types. They can be used to test factual recall as well as higher order learning ability especially when they are well constructed. Unfortunately, the result of this study has shown that the participants lack the ability to write

such items and as such need capacity building in this very important area of test item-writing.

5. **Self-Assessment Exercise 4: Completion Test Item- Writing**
This form of test item is usually favoured by educators because it seems very easy to construct. But, the result of this study showed that the educators lack the desired capacity demand of this category of test items. They also need capacity development in this area of item-writing.
6. **Self-Assessment Exercise 6: Ability to Construct Essay Test Items Requiring Higher Order Thinking Skills**

Essay tests are conceived as presenting realistic tasks that simulate real life situations to the student unlike multiple choice items. Essay items are more favoured than multiple choice items because of this view. A typical essay test item usually consists of a small number of questions to which the student is expected to recall and organise knowledge in logically integrated answers. It could be in the form of either extended response or short answer items. It also has merit and demerits. Although essay test items are highly preferred especially for higher levels of studies, and are usually used at these high levels to assess students learning outcomes, the result of this study has exposed that even in this area, educators need of capacity building stands out.

Conclusion

This study has far- reaching implications for enhancing tertiary teachers' capacity in assessment for improving the quality of education. It is obvious that measurement of quality of learning is a very critical part of learning system and learners' assessment is a major part of the learning process. Teachers assume this special role and ensure that this role is enforced in the educational systems especially through teaching and learning. Assessment is the means of monitoring teaching and learning effectiveness. For this role to be successfully implemented and purposefully harnessed, teachers are to be adequately prepared to meet up with its demands. Enhancement of tertiary teachers' capacity in test item-writing is one of the ways in which the flaws inherent even in the most ideal measurement system can be managed if not eliminated. This study focused on the assessment of tertiary teachers' capacity development need in test items writing needed for use as instrument in harnessing the effectiveness of the product of the teaching learning system.

Since, even with the best of intentions, external examiners and moderators can only contribute a limited amount to the process of assessment. Therefore, it is obvious that the primary responsibility for assessment continues to rest with teachers despite its importance.

The result of the study showed that there is an urgent need for capacity building of tertiary teachers in test item- writing. The capacity building need is very clear especially in writing items requiring the ability to construct essay test items requiring higher order thinking skills, multiple choice test items and completion test items. The study revealed that the tertiary teachers lacked knowledge of item- writing in these very important areas that are mostly used as instruments for assessment at the tertiary levels of education. The result indicates an urgent need for continuing professional development of educators in the rudiments of item-writing. Continuing professional development is accepted as an integral part of teacher education because only continuing learning and training assures a high level of expertise that enables the teachers to keep their professional skills and knowledge up-to-date. CPD enables teachers keep up with the relevant and up-to-date knowledge in their field as well as with the newest pedagogical approaches which are adjusted to the needs of the 21st century. This call is very timely and can no longer be delayed especially now that emphasis is shifting to quality of education. Also, the writing of multiple-choice test items desires special attention and ought to be viewed seriously especially now that assessment practices globally is gradually automated due to large class sizes (characteristic of ODL institutions) brought about by Education for All and the Millennium Development Goals. African countries cannot afford to lag behind.

Recommendations

It is hereby recommended that intensive and regular capacity building for tertiary teachers in test item- writing be organised by the various institutions as the need arises. This capacity building should also be part of the orientation to be given to newly engaged tertiary teachers in empowering them for their roles as academics. The rudiments of test item-writing should also be emphasised in the trainee teachers' curriculum as a matter of urgency.

References

- Australian Universities Teaching Committee (AUTC) (2002). Centre for the Study of Higher Education (CSHE). Assessing Student Learning in Australian Universities. Enhancing Learning by Enhancing Assessment. Core principles of effective assessment. Assessed on 9/29/2011 from:
<http://www.cshe.umimelb.edu.au/assessingleaming/05/index.html>.
- Bloom, D., Canning, D., & Chan, K. (2006, February). *Higher Education and Economic Development in Africa*. Washington, DC: Human Development Sector, Africa Region. The World Bank. Retrieved from
<http://www.arp.harvard.edu/AfricaHigherEducation/Reports/BloomAndCanning.pdf>
- Brown, S. (2005). Assessment for Learning. *Learning and Teaching in Higher Education*. 1. pp. 81 - 89.
- Clay, B. (2001). Is this a trick question? A guide to writing effective test questions. Kansas Curriculum Center Kansas State Department of Education.
- Education Week “National Survey of Public School Teachers 2000”. In: B. Clay (2001). Is this a trick question? A guide to writing effective test questions. Kansas Curriculum Center Kansas State Department of Education.
- FEANI <http://www.feani.org>
- Frey, B.B. (2005). *An Introduction to Quality Test Construction*. Retrieved January 29, 2006 from
<http://www.specialconnection.ku.edu/cgi-bin/cgiwrap/speconn/main.php?cat=assessmentsection=gug>
- Frey, B.B., Peterson, S, Edward, L.M, Pedrotti, J.J & Peyton V.(2003). *Item-writing Rules, Collective Wisdom*. University of

Kansas Journal of Teaching and Teacher Education, 21(4). pp. 357- 364.

Gibbs, G. (2006). How Assessment Frames Student Learning. In: C. Bryan and Clegg. (Eds). *Innovative Assessment in Higher Education*. 23 - 36. London: Routledge.

Imo, G. C. (2010, October). "Improving quality of assessment in Physics through training of teachers in test construction." Paper presented at the Twenty-eighth Annual Conference of the Association for Educational Assessment in Africa. Abuja, Nigeria.

International Institute for Capacity Building in Africa (IICBA) (2002). Newsletter, 4 (1) pp 1.

Jimoh, S. A. (2010). "Using modern techniques of assessment to enhance the operational efficiency of educational institutions." Paper presented at the Twenty-eighth Annual Conference of the Association for Educational Assessment in Africa. Abuja, Nigeria.

Khaahloe, M. B. (2010). "Use of alternative assessment in institutions of higher education in Lesotho." Paper presented at the Sixth Pan-Commonwealth Forum on Open Learning, Kochi, India.

Lewis, G. R. & Smith, D. H. (1994). *Total Quality in Higher Education*. Florida: St Lucie.

Marso, R. N. & Pigge, F. L. (1993). *Teachers' Testing Knowledge, Skills and Principles*. Lincoln.

National Council for Accreditation of teacher Education (NCATE), (2000). "Summary Data on Teacher Effectiveness, Teacher Quality and Teacher Qualifications".

National Commission on Teaching and America's Future (1996). In: B. Clay (2001). *Is this a trick question? A guide to writing effective test questions*. Kansas Curriculum Center Kansas State Department of Education.

- Okoli, I. (2013, March). Rethinking education measurement in Nigeria. "The Guardian Rise Youth Speak". The Guardian Newspaper. In: M. Oloja (Ed.). Isolo, Lagos, pp. 64. www.risenetworks.org/youthspeak and www.nguardiannews.com.
- Okonkwo, C. A. (2012). A need assessment of ODL educators : • determine their effective use of open educational resources. *7T? International Review of Research in Open and Distance Learning*. 73(4), 293-312.
- Okonkwo, U. M. & Okonkwo, C. A. (2008). Meaningful learner assessment: Evaluating the quality of test items. A paper presented at the International Association of Educational Assessment (IAEA) 34th Annual Conference, Cambridge, United Kingdom (UK), 7-12 September, 2008. Online publication Accessed on Monday 30th March 2008 ⁴ http://www.iaea2008.cambridgeassessment.org.uk/ca/digitalAssets/164765_Okonkwo_UM.pdf Race, (i The Art of Assessing. A toolkit of techniques.
- Ontario Education (2004, August). Excellence for all. *Tea Excellence - Unlocking Student Potential through Contin' Professional Development*. Fifth in a series of mini-discuss papers prepared for the education partnership table to permit input to the direction of education in Ontario, Volume 2.
- Tenebe, V. A. (2013, January). Regional workshop on course material development for ODL programmes. Opening address presented the Vice Chancellor, National Open University of Nigeria (NOU) Lagos. Held at NOUN Hqs, Victoria Island, Lagos, 28-31.
- United Nations (1948). *Universal Declaration of Human Rights*. New York, NY: Author. Retrieved from <http://www.un.org/en/documents/udhr/>
- United Nations (1948). *Universal Declaration of Human Rights*. New York, NY: Author. Retrieved from <http://www.un.org/en/documents/udhr/>

- Valentin, J.D. & Godfrey, J.R. (1996). *The reliability' and validity' of tests constructed by Seychellois teachers*. Retrieved January 29,2007 from <http://www.aare.edu.au/96pap/godfi96269.txt>.
- Wright, C. R., & Reju, S. A. (2012). Developing and deploying OERs in sub-Saharan Africa: Building on the present. *The International Review of Research in Open and Distance Learning*, 13(2), 181-220.
- Zimmaro, D. M. (2010). Writing good multiple-choice exams. Center for Teaching and Learning, www.utexas.edu/academic/ctl.

