ASSESSMENT OF ECONOMICS TEACHERS' COMPETENCE IN TEACHER-MADE TEST IN UKE DEVELOPMENT AREA, NASARAWA STATE, NIGERIA

[1]AFFI AMOS BAWA, PH.D & [2]MAIKUDI KWANZA ALLAHNANA, PH.D
[1]Department of Guidance and Counselling, Faculty of Education
Bingham University, Karu, Nasarawa State-Nigeria
[2]Department of Educational Foundations, Faculty of Education
Nasarawa State University, Keffi-Nigeria
maikudiallahnana@gmail.com

Abstract

This study investigated assessment of secondary school Economics teachers' competence in teacher-made test in Uke Development Area, Nasarawa state, Nigeria. Two research questions were addressed, and one null hypothesis was tested. Descriptive survey research design was used. The study population comprised 126 Secondary Schools Economics teachers in Uke Development Area of Nasarawa State. A 30-item questionnaire titled "Economics Teachers' Competence in Test-Making Questionnaire" (ETECTMAQ) and Economics Teacher made Achievement Test were (ETAT) administered to a sample of 100 secondary school Economics teachers. The instrument's construct and content validity were established with indices of and 0.85 and 0.78 with its reliability was confirmed with a Cronbach's alpha and Kurdear-richardson 20 coefficient of 0.87 and 0.92. Data were analyzed using frequency counts, percentages and the Contingency Coefficient. The results of the analysis revealed significant differences in teachers' competency in constructing test questions, with overall competence being low. Teachers were found to focus primarily on the lower levels of the cognitive domain (remembering, understanding and applying). The study conclude that through addressing the identified gaps in teachers' focus on higher cognitive domains such as analyzing, evaluating, and creating, stakeholders can ensure the development of more balanced and effective assessments. This will ultimately enhance the quality of education and better prepare students for complex economic reasoning and problem-solving tasks. The study recommended organizing workshops and seminars to enhance teachers' competence in test construction.

Keywords: Teacher competence, teacher made-test, content validity

Introduction

In this twenty-first century, assessment plays a crucial role in the teaching and learning process, serving as an instrument for evaluating students' understanding and providing feedback to guide instruction. In the context of Economics education, teacher-made tests are frequently used as a means of assessing students' cognitive abilities and understanding of economic concepts. However, the quality and effectiveness of these assessments are largely dependent on the competence of the teachers in constructing valid and reliable test items (Allahnana, Akande, Uwelo & Kukwi, 2020). Education is highly valued in Nigeria due to its significant role in national development. As a result, various subjects are studied across different educational levels to align with the national goal of using education as a tool for effective development. At the secondary school level, Economics is one of the key subjects taught. Globally, the importance of Economics as a foundational element for achieving national development is widely acknowledged. For instance, Arnold (2010) reported that in the United States, billions of dollars were invested in educational research and development in Economics as far back as 1994.

In Nigeria and other developing countries, Economics is considered a critical subject and is included in the senior secondary school curriculum. Economics emphasizes the efficient utilization and management of scarce resources to maximize human satisfaction, making it a vital subject for individual and societal development (Ochuba, 2011). A teacher-made test in Economics serves as an evaluation tool crafted by Economics teachers to assess students' comprehension, knowledge, and application of economic concepts. Unlike standardized tests, these assessments are customized to the curriculum, class objectives, and specific needs of students. However, issues such as the validity and reliability of teacher-made Economics tests in Nigerian secondary schools have been highlighted by researchers. Williams (2016) observed that many classroom-based assessments lack validity and reliability due to teachers' inadequate test-construction skills. Consequently, poorly designed tests often contain ambiguous or misleading questions, leading to inaccurate measurements of students' achievements and, potentially, high failure rates (Fajonyimi, 2012).

This deficiency in test construction competence among Economics teachers can have serious implications. Without valid and reliable tests, it becomes challenging for teachers and school administrators to measure and interpret students' performance accurately, thereby undermining efforts to provide tailored educational opportunities and support. High-quality tests are essential for making informed educational decisions and evaluating the success of learning programs, as noted by Izard (2015). Achievement tests, including those developed by Economics teachers, play a critical role in assessing essential aspects of instruction and student learning. Well-constructed classroom-based tests, which are more instructionally relevant, provide teachers with meaningful feedback on students' knowledge retention (Childs, 2013). However, constructing valid and reliable tests requires adherence to established principles of test construction, such as objectivity, clarity, and proper grading scales (NTI Manual, 2016).

Teachers' lack of competence in test construction has broader consequences, including fostering examination malpractice and producing flawed measurements of student comprehension and achievement (Paulson, 2014). Faulty test items can confuse students and undermine the accuracy of assessment results, as highlighted by Koksal (2014). Jatto (2019) further emphasized that many secondary school teachers struggle to create high-quality test items, such as well-structured multiple-choice questions. For Economics teachers in Nigeria, test construction competence is crucial to ensure that assessments yield valid, reliable, and meaningful insights into students' progress and instructional effectiveness. By addressing issues such as unclear instructions, lack of alignment with learning objectives, and non-representative test items, teachers can improve the quality of their assessments. Competence in test construction allows teachers to create tests that are fair, clear, and reflective of students' learning, ultimately contributing to more effective Economics education. To construct high-quality test items, classroom teachers must develop competencies in key areas, as outlined by Chidolue (2012). These include:

Clearly determining the purpose of each testing exercise, Stating specific and measurable educational objectives, Creating a detailed content outline, Preparing a test plan to guide item construction, Selecting appropriate test item formats, Constructing test items those are clear, precise, and unambiguous, Ensuring test items focus students' attention on a single concept despite their diverse backgrounds, Developing items with suitable levels of difficulty and strong discriminative indices, Providing a marking guide tailored to the test, Performing item analyses to assess test quality, Designing tests that are cost-effective and efficient, Giving clear instructions on administering and taking the test. And Reviewing the test to correct errors in item construction.

Despite these guidelines, a significant gap exists between student performance in teacher-made

classroom tests and standardized external examinations such as the West African Examinations Council (WAEC) and National Examinations Council (NECO). Researchers like Itedjere (2018) and Agu (2012) have noted declining performance in these external examinations, with failure rates exceeding 75%. This discrepancy raises concerns about the validity and reliability of teacher-made tests, as many students perform better in classroom tests than in standardized assessments. According to Esomonu (2012), such discrepancies suggest that teacher-made tests often fail to accurately assess students' knowledge and understanding.

Teachers' inability to construct effective tests has been attributed to several factors, including a lack of adequate pre-service training in test construction. While most Nigerian secondary school teachers hold a Nigerian Certificate in Education (NCE), which includes training in educational testing, they still experience anxiety and difficulty in constructing quality test items (Ebinye, 2001). This could be due to insufficient emphasis on assessment during professional development programs or teachers' failure to acquire test construction skills during training (Stiggins, 2014).

Further observations (Ujah, 2016) indicate that teacher-made testing instruments in Nigeria often lack robust psychometric properties. The validation process for these tests is frequently superficial, relying solely on face or construct validation. Consequently, many Economics teachers in secondary schools appear to lack the skills necessary for developing and validating high-quality assessment instruments.

Taxonomy is a classification and in this case refers to the classification of educational objectives by educational authorities such as Benjamin et al. Indeed, there has been much taxonomy under the three major categories of learning, namely: cognitive domain, affective domain and psychomotor domain. The cognitive domain deals with the intellectual skills of remembering (recognition, recall, and recollection), understanding, problem solving via application of principles, and the higher order processes of analysis, information storage, retrieval, rearrangement, and evaluation. Bloom et al, (1956) published 'A Taxonomy of Educational Objectives: Handbook I: Cognitive Domain', while Krathwohl and others (which included Bloom) published the 'Taxonomy of Educational Objectives: Handbook II: Affective Domain' (Krathwohl et al, 1964). The affective domain is the category of learning that deals with feelings, attitudes, appreciations and values. All expressions of consciousness, likes and dislikes, emotions and preferences, come under the affective domain. The psychomotor domain, which is the third category, deals with sensory-motor behaviours that involve the use of sensory organs such as the eye and the skin, and the use of motor (movement) organs such as the fingers, the hands and the legs. The acquisition of various manipulative and movement skills found in most technical and vocational subjects involve extensive manifestation of learning in the psychomotor domain. Harrow (1972) published 'A Taxonomy of the Psychomotor Domain' which contains a complete classification of the psychomotor domain of educational objectives organized in much similar pattern as the previous handbooks.

Taxonomy refers to the classification of educational objectives and is widely recognized for its utility in guiding instructional design and assessment. Notable contributions to taxonomy include works by educational theorists like Benjamin, et al. Their frameworks categorize learning into three domains: cognitive, affective, and psychomotor. These domains provide a structure for understanding and assessing learning outcomes.

Cognitive Domain: The cognitive domain focuses on intellectual skills such as remembering, understanding, applying, analyzing, synthesizing, and evaluating. Bloom et al. (1956) developed a taxonomy that classifies these skills into six levels of increasing complexity. This domain is particularly relevant to Economics education, as it emphasizes problem-solving, critical thinking, and application of theoretical knowledge to real-world scenarios.

Affective Domain: The affective domain encompasses feelings, attitudes, values, and emotional responses. While it is less directly associated with test construction in Economics, it influences how students engage with and appreciate the subject matter. Psychomotor Domain: The psychomotor domain involves physical skills and sensory-motor coordination. Although not central to Economics, it plays a role in practical or technical disciplines.

Economics teachers must demonstrate competence in crafting assessments that align with the six levels of the cognitive domain:

Knowledge: Tests requiring recall of economic principles, definitions, and facts.

Comprehension: Items asking students to explain concepts or interpret trends.

Application: Scenarios requiring the application of economic theories to solve problems.

Analysis: Tasks that involve breaking down economic phenomena into components to determine relationships.

Synthesis: Activities where students create new frameworks, such as economic models or policy proposals.

Evaluation: Questions requiring judgment of economic strategies or the critique of policies based on evidence. Competent Economics teachers use these levels to design tests that comprehensively measure students' cognitive skills, ensuring alignment with instructional objectives.

Constructivism theory by Vygostky (1978) was used and is a knowledge theory asserting that individuals generate meaning through the interplay between their experiences and ideas. From infancy, this interaction involves experiences and reflexive behavioral patterns. Constructivists emphasize that knowledge cannot be directly transferred from teachers to learners; instead, it is actively constructed by learners themselves. Vygotsky highlights that effective learning occurs when students create and accommodate meaning in a context that builds on their prior knowledge. Through applying constructivist principles, Economics teachers can design tests that not only measure student achievement but also enhance their capacity to understand and apply economic concepts. This approach bridges the gap between classroom instruction and real-world application, fostering deeper learning and competency in Economics.

Okpala (2017) which revealed that few teachers in Nigeria know that good teaching is characterized by assessments that motivate and engage students in ways that are consistent with their philosophies of teaching and learning and with theories of development, learning and motivation. Hamman and Kamis (2014) on in which the study revealed that a preponderance of examination questions assessed simple learning outcomes of knowledge and comprehension categories of the cognitive domain at the expense of learning outcomes that call for synthesis and evaluation. D'Agostino, (2017) that learning cannot be meaningful without teachers themselves being competent in the art and science of handling the tools; which are the tests and examinations. Allahnana e-tal (2020) studied the development and validation of Economics Teacher-Made Test for Assessing Students' Achievement in the North Central States of Nigeria. Finding from the study showed that, the content validity index was found good at 0.80 was found to be highly reliable at 0.89 reliability indexes. Allahnana and John (2020) investigated the factors determining the reliability of Economics and Geography teacher-made tests in Kokona Local Government Area of Nasarawa State, Nigeria. Findings from the study revealed that there was no significant difference between time and the reliability of teacher-made tests when the t-value of .459, with the Significant value of 0.003, was less than the table value (P<0.005).

The over-reliance on poorly designed tests that focus on lower-order cognitive skills such as remembering and understanding rather than higher-order skills like analysis, evaluation, and creation

undermines the objectives of the education system. To address this, there is an urgent need to develop and validate tools for assessing student achievement in Economics and to improve the test construction skills of teachers. This includes addressing challenges like inadequate proofreading, insufficient test items, and ineffective analysis of student performance.

Therefore, this study seeks to assess the competence of Economics teachers in test construction and the content validity of teacher-made tests in Nasarawa State, Nigeria. The findings will provide valuable insights into improving test construction practices and ensuring the reliability and validity of teacher-made assessments.

Objectives

The main objective of this study is to assess the secondary school Economics teachers' competence in teacher-made test in Uke Development Area, Nasarawa state, Nigeria. Specifically, the study sought to:

1. assessed the area of secondary school Economics teacher competence in teacher made-test in Uke Development Area of Nasarawa state, Nigeria.

2. examine the content validity of secondary Economics teacher competence in teacher made-test in Uke Development Area of Nasarawa state Nigeria.

Research Questions

1. What is the area of secondary school Economics teacher competence in teacher made-test in Uke Development Area of of Nasarawa state, Nigeria.?

2. What is the content validity of secondary school Economics teacher competence in made-test in Uke Development Area of Nasarawa state, Nigeria?

Hypothesis

There is no significant difference between area of competence and content validity of Economics teacher competence in made-test in Uke Development Area of Nasarawa state, Nigeria.

Methodology

Descriptive survey research design was used. The study population comprised 126 Secondary Schools Economics teachers in Uke Development Area of Nasarawa State. A 30-item questionnaire titled "Economics Teachers' Competence in Test-Making Questionnaire" (ETECTMAQ) and Economics Teacher made Achievement Test were (ETAT) were administered to a sample of 100 secondary school Economics teachers. The instrument's construct validity was established with an index of 0.78, and its reliability was confirmed with a Cronbach's alpha coefficient of 0.87. Data were analyzed using frequency counts, percentages and the Contingency Coefficient.

Results

Research Question 1: what is the area of secondary school Economics teacher competence in teacher made-test in Uke Development Area of of Nasarawa state, Nigeria?

Table 1: Percentage Distribution of Economics Teachers' Competence in Teacher made-test

Area of Competence	Always	Almost Always	Some-times	Frequ-ently	Level of Competence
Administering Assessments	70%	20%	5%	5%	High
Scoring Assessments	70%	20%	5%	5%	High
Interpreting Assessment Results	70%	20%	5%	5%	High
Using Assessment Results for Student Learning	30%	20%	20%	30%	Moderate
Evaluating Teaching Methods	30%	20%	20%	30%	Moderate
Developing Valid Grading Procedures	30%	20%	20%	30%	Moderate
Communicating Results	30%	20%	20%	30%	Moderate
Recognizing Unethical or Illegal Assessment Methods	30%	20%	20%	30%	Moderate

Table 1 indicates that while there are strengths in certain areas (e.g., administering and scoring assessments), there is room for improvement in the areas of using assessment results to inform teaching and learning, developing valid grading procedures, and recognizing unethical practices. The findings highlight the need for targeted professional development to enhance these competencies among Economics teachers in Nasarawa State.
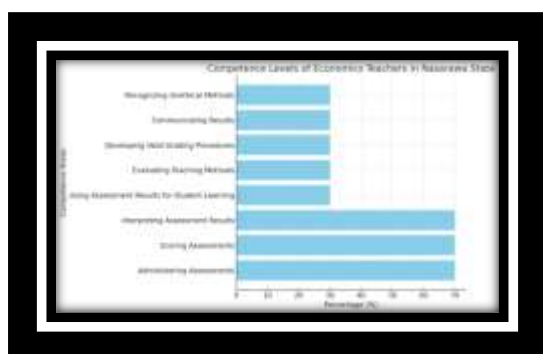

Figure 1: Bar chart representing the competence levels of Economics teachers in teacher made-test

Research Question 2: what is the content validity of secondary school Economics teacher competence in made-test in Uke Development Area of Nasarawa state, Nigeria?

Table 2 Content validity of Economics Teachers Made-test

Level of Cognitive Domain	Economics Teacher Made-test(MCQ)	Ideal	Discrepancy (Teacher - Ideal)
Remembering	58%	40%	18%
Understanding	30%	40%	-10%
Applying	6%	5%	1%
Analyzing	4.3%	5%	-0.7%
Evaluating	1%	5%	-4%
Creating	0.7%	5%	-4.3%
Total	**100%**	**100%**	

Table 2 shows the percentage distribution of cognitive domain levels assessed by teachers compared

to the ideal levels suggested by the curriculum. Teachers assessed 18% more "remembering" tasks than recommended, and 1% more "applying" tasks. In contrast, they focused less on "understanding," "creating," "evaluating," and "analyzing" than the ideal levels. The teachers placed a greater emphasis on "remembering" compared to other cognitive domain levels.

Table 2.1 Content validity of teachers of economics essay examination questions

Level of cognitive domain	Essay questions Teacher	Ideal	Discrepancy (Teacher-Ideal)
Remembering	61%	30%	31%
Understanding	18%	30%	-12%
Applying	8%	10%	-2%
Analyzing	8%	10%	-2%
Evaluating	2%	10%	-8%
Creating	3%	10%	-7%
Total	100%	100%	

Table 2.1 presents the percentage levels of cognitive domain assessed by teachers against the ideal as recommended by the curriculum. The teachers assessed 31% more of remembering than the ideal. On the other hand, they assessed low of understanding, applying, analyzing, evaluating and creating than ideal. The teachers emphasized remembering more than any other levels of the
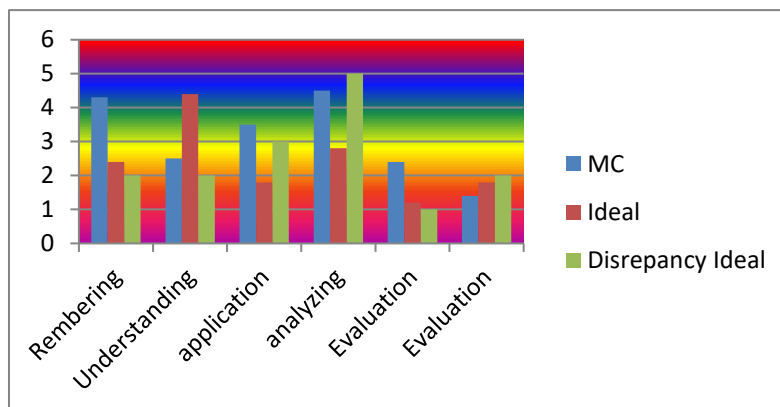

Figure 2 Bar chart presenting Level of Cognitive Domain (Taxonomy)

Testing of Hypothesis

H01: There is no significant difference between area of competence and content validity of Economics teacher competence made-test in Uke Development Area of Nasarawa state, Nigeria.

It was hypothesized that there is no significant relationship between Nasarawa state senior secondary schools economics and content validity of their examination questions?

The result of the hypothesis tested using contingency coefficient is presented in the table 3 below

Table 3:Contingency Coefficient of Economics Teachers Made test and Content Validity

Variable	χ^2	df	Contingency Coefficient	p-value	Decision
Economics Teacher Competence in Teacher Made-Test	0.056	98	.273	.195	No significant
Content Validity of Teacher Made-Test	3.84	98	.220	.429	No significant

Table 3 presents a contingency coefficient of economics teacher competence and content validity. The results indicate that the value of contingency coefficient was no significant. The null hypothesis is therefore accepted. This means that economics teachers' competence was not significantly related to the content validity of their examination questions.

Discussion of Findings

Teachers of Economics in the Uke Development Area of Nasarawa State senior secondary schools displayed limited competence in developing valid grading procedures, effectively communicating results, and identifying unethical or illegal assessment practices. This finding aligns with Okpala (2017), who reported that only a few teachers in Nigeria recognize that effective teaching involves assessments that motivate and engage students in ways consistent with their educational philosophies, learning theories, and motivational principles.

Due to insufficient knowledge of examination question construction, teachers assessed 18% more "remembering" tasks than ideal and 1% more "applying" tasks than ideal. Conversely, they assessed lower levels of understanding, creating, evaluating, and analyzing than recommended. Teachers heavily emphasized "remembering" compared to other levels of the cognitive domain, corroborating Hamman and Kamis (2014), who found that examination questions predominantly assessed basic learning outcomes (knowledge and comprehension) at the expense of higher-order outcomes such as synthesis and evaluation.

The teachers' assessment also revealed that 31% more "remembering" tasks were assessed than ideal, indicating a disproportionate focus on lower-order cognitive skills. The contingency coefficient analysis revealed no significant relationship between teachers' competence in Commerce and the content validity of their examination questions, suggesting that insufficient knowledge of Bloom's taxonomy in question construction contributed to this result. D'Agostino (2017) emphasizes that meaningful learning is unattainable unless teachers possess the competence to handle assessment tools effectively. This finding aligns with the work of Allahnana, e tal (2020), who reported a content validity index of 0.80, demonstrating high reliability with a reliability index of 0.89. Furthermore, the work of Allahnana and John (2020) revealed no significant difference between time and the reliability of teacher-made tests, as the t-value of 0.459, with a significance value of 0.003, was less than the threshold ($p < 0.005$). This study contributes to the understanding of how teacher competence impacts assessment practices, particularly in Economics. It highlights specific areas where teachers in Nasarawa State, Nigeria, demonstrate limited competence, such as the development of valid grading procedures, effective communication of results, and recognition of unethical assessment methods. The findings provide a clearer picture of the challenges teachers face and the gaps that exist in their professional knowledge and skills regarding assessment.

The research provides insights into how teachers assess cognitive skills and the emphasis they place on different levels of Bloom's taxonomy. It reveals a disproportionate focus on lower-order cognitive skills (remembering and applying) over higher-order skills (synthesis and evaluation). This contributes to the broader understanding of how assessment practices can be aligned more closely with cognitive development theories and learning outcomes.

By connecting teachers' assessment practices with learning theories, particularly constructivism, the study highlights the importance of aligning assessments with students' existing knowledge and experiences. It underscores the need for assessments that are not only aligned with curriculum content but also engage students actively in the learning process. This connection offers a more holistic view of effective teaching and learning strategies in Economics education.

The findings point to the need for targeted professional development programs for Economics teachers. Specifically, there is a need to improve teachers' competencies in constructing valid and reliable assessment tools that reflect the desired learning outcomes. The study contributes to the discourse on how professional development can be designed to address these gaps and enhance teacher effectiveness.

The study's results have implications for educational policy and practice, particularly in terms of teacher training and curriculum development. By identifying specific areas where teachers fall short, the research can inform the design of policies and programs aimed at improving assessment practices across secondary schools. It also suggests areas where curriculum reforms may be needed to better align teaching and assessment practices with current educational goals.

The study opens up several avenues for future research, including investigating the impact of targeted professional development programs on teachers' assessment practices, exploring the relationship between teacher competence and student outcomes, and examining how contextual factors (such as school resources and socio-economic background) influence assessment practices. These contributions pave the way for more nuanced understanding and improved strategies for enhancing teacher competence and student learning outcomes in Economics.

Conclusions

The study on teacher competence in the construction and administration of teacher-made tests in Economics at secondary schools in Uke Development Area of Nasarawa State, Nigeria, reveals significant insights into the current state of assessment practices. It highlights critical gaps in teachers' ability to develop valid grading procedures, communicate results effectively, and recognize unethical assessment methods. These deficiencies suggest a need for targeted professional development aimed at enhancing teachers' skills in assessment, ensuring that they can better align their practices with educational objectives and cognitive development theories.

Furthermore, the study underscores the disproportionate emphasis on lower-order cognitive skills in assessments, with a noticeable gap in the focus on higher-order thinking skills such as synthesis and evaluation. This calls for a reorientation of assessment practices to encourage deeper engagement with the content and foster critical thinking skills among students. By aligning assessment practices with Bloom's taxonomy and constructivist learning theories, teachers can better facilitate meaningful learning experiences that challenge students to apply, analyze, synthesize, and evaluate information.

Recommendations

The following recommendation is made:

The Nasarawa State Ministry of Education should organize seminars/ workshops and provide in-

service training for Nasarawa state senior secondary school teachers to up-grade their knowledge on assessment literacy, including the principles of test construction, item writing, and the application of Bloom's taxonomy in developing tests. These programs should emphasize the importance of aligning assessments with educational objectives and cognitive development theories.

References

Agu, L. (2012). The assessment methods that are used in a secondary school mathematics class. Journal of Education, Teachers and Trainers, 4(2), 133-143. NERDC Press.

Ali, B. (2010). Assessment in primary school mathematics classrooms in Nigeria. International Journal of Education Learning and Development, 2(2), 50-55.

Allahnana, K. M., Akande, M. T., Uwelo, D. & Kukwi, I. J. (2020). Development and   validation of Economics Teacher-Made Test for assessing students' achievement in the   North   Central States of Nigeria. file:///C:/Users/USER/Downloads/Uwelo2020.pdf

Allahnana, K. M. & John, A. (2020). Factors determining the reliability of Economics and Geography teacher-made tests in Kokona Local Government Area of Nasarawa State, Nigeria. Bingham Journal of Economics and Allied Studies (BJEAS), 4(2), 3-4.

Anderson, L. W. & Krathwohl, D. R. (Eds.). (2001). A taxonomy for learning, teaching, and assessing: A revision of Bloom's Taxonomy of Educational Objectives. Boston: Allyn   & Bacon (Pearson Education Group).

Anikweze, C. M. (2013). Measurement and evaluation for teacher education (3rd ed.). Ibadan: Malijoe Soft Print, 105-107.

Arvold, T. (2010). Validation of multilevel constructs: Validation methods and empirical findings for the EDI. Social Indicators Research, doi:10.1007/s11205-011-9844-3.

Bloom, B. S., Hastings, T. J., Madaus, G. F., Harrow, J. A., Krathwohl, D. R. & Masia, B. B. (1956). Taxonomy of Educational Objectives, Handbook I: Cognitive Domain. London: Longman Company Limited.

Chidolue, A. (2012). Measurement and Evaluation in Education. Onitsha, Nigeria: Africana-FEP Publishers Limited.

Childs, B. (2013). Principles of tests construction and administration. Lagos: Bolabay   Academic Publishing Consultant.

Chuba, S. (2011). Early Development Instrument: An indicator of developmental health at school entry. Monograph from the proceedings of the International Conference on Measuring Early Child Development, Vaudreuil Quebec.

D'Agostino, P. (2017). The role of teacher competence in effective assessment practices. Educational Research and Reviews, 13(1), 12-18.

Ebinye, O. (2001). Improving the standard and quality of primary education in Nigeria: A case study of Oyo and Osun States. International Journal for Cross-Disciplinary Subjects in Education, 1(3), 25-38.

Esomonus, N. (2002). Fundamentals of measurement techniques and practice. New York: Oxford Press.

Fajonyimi, W. (2012). Introduction to test theory and development process. Port-Harcourt: Chris-Ron integrated services.

Hamman, P. & Kamis, S. (2007). Measurement, Assessment and Evaluation. Lagos: Concepts Publications Limited.

Harrow, A. J. (1972). A taxonomy of psychomotor domain: A guide for developing behavioral objectives. New York: McKay Publishers.

Itedjere, J. (2012). Sources of validity evidence for educational and psychological tests. Educational and Psychological Measurement, 68, 397–412.

Izard, M. F. (2015). Measurement and evaluation in education and psychology. Ado-Ekiti: Adebayo Printing Press.

Jatto, D. (2019). Introduction to research in education. London: Routledge, Belmont: Wadsworth Publishing Company.

Koksal, L. (2014). Perspectives on the evolution and future of educational measurement. Westport, CT: American Council on Education/Praeger.

Krathwohl, D. R., Bloom, B. S., & Masia, B. B. (1964). Taxonomy of Educational Objectives: The Classification of Educational Goals - Handbook II: Affective Domain. New York: McKay Pub.

National Teachers Institute (NTI) Manual. (2016). Reflective and intellective position papers on Mathematics Education Issues (pp. 80-102). Abuja: Marvelous Mike Nigeria.

Okpala, M. (2017). Evolving concepts of test validation. Annual Review of Psychology, 37, 115.

Paulson, O. (2014). Poverty reduction through microfinancing: The case of Uganda. Bullion, a publication of the CBN, 30(3).

Stiggins, O. (2014). Effective implementation of the continuous assessment policy in primary schools: A keynote presented at the train-the-trainers workshop on continuous assessment. Lagos.

Ujah, J. (2016). Procedures for proper evaluation of students learning in Nigerian universities. A paper presented at the Second International Conference of International Research and Development Network held at University of Port-Harcourt.

Vygotsky, J. (1978). Dimensions of Continuous Assessment in Nigerian Education System. Akwa MCKs Publishers, 61-172.

Williams, A. (2016). Training of undergraduate teachers in Nigerian universities: Focus on problems of effective integration and attitude of students to computers in mathematics instruction. Available at http://www.math.uocgr/~ictm2/Proceeding/gap119pdf