Effective Mathematics Teaching Through The Appropriate Usage of Principles of Teaching, Tasks and Feedback Implementation Among Mathematics Teachers

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Abstract
This study sought to determine the principles of teaching they consider when designing tasks for teaching, the types of tasks that address the principles being implemented and how they seek feedback on the theoretical and practical aspects of the framework by the mathematics teachers in primary, secondary, colleges of education and university in Oyo state. The study adopted a descriptive research design of correlational type to achieve the purpose of the study. A total number of two hundred (241) and forty-one mathematics teachers in Ibadan, Oyo state, Nigeria were selected as respondents. Sampling was done using stratifies sampling technique from primary, secondary and Colleges of education in Oyo State, Nigeria. The age range of respondents was 47±10.5 years with mean of 48.41 and 3.75 standard deviation. The research instrument employed was self-developed questionnaire for the purpose of data collection for the study. The questionnaire consists of demographic section, and principles of teaching that teachers across the categories of school, types of tasks that addresses the principles of teaching indicated and how feedback is obtained on the theoretical and practical aspect of the framework. The instrument was pilot tested using mathematics teachers in Ogun state teaching staff commission and the reliability coefficients obtained were 0.81, 0.63 and 0.73 for primary, secondary and college of education respectively. Data collected was analysed using using statistical tools like frequency counts, percentages and measure of central tendency (mode). The findings revealed that there were similar responses on the principles of teaching indicated by all the categories of the teachers except the university teachers. On the issue of types of tasks that address the principles indicated there was consensus in their responses, and finally, there is a wider disparity on how the mathematics teachers at various educational levels seek feedback on the theoretical and practical aspect of the framework. It was concluded that varying degree of performance of learners in mathematics at the various level of education was due to disparity in the method of seeking for feedback and to some extent the differences in the types of tasks that address the principles of teaching being claimed. Based on this, researcher recommended that standard as listed in principles of teaching should be adhere to by mathematics teachers, tasks that are commensurate with the standard of principles of teaching and the appropriate measures of feedback should be followed to the later.

Keywords: Effective teaching, feedback, implementation, mathematics, principles of teaching, tasks.

Introduction
The importance of Mathematics cannot be over emphasised however, the course which happened to be the background of all science disciplines, is being confronted with a lot of problems. The problems are so enormous that as soon as one problem is solved, another will surface. The

problem ranges from the abstract nature of the course, the assumption that mathematics is complex by many students, that after graduation where will they work apart from teaching, some of the learners from educated home have a mindset that mathematics is difficult right from their parents and it is no going area, some mathematics teachers do not have teaching skills, the attitude of the students to mathematics as a subject too is too bad, some students do not know how to study or learn mathematics – they study or read mathematics note or textbooks like when they are reading History or Geography notes or textbooks, some students are lazy they cannot give mathematics the attention it requires, some have phobia for anything figure and finally the dearth of mathematics trained teachers who are fully aware of principles of teaching, the tasks that can address each of the principles and how to seek feedback from the learners are the major problem confronting the teaching-learning process of Mathematics (Fehintola, 2011).

A shortage of qualified and trained teachers in Mathematics, coupled with a lack of jobs in the labour market, make it possible for graduates with bachelor's degrees in Physics, Chemistry, and Engineering to teach Mathematics (Adediwura, 2012). The resultant effect is poor performance in Mathematics both at internal and external examinations. The researcher opined that optimum performance in Mathematics can only be possible if there is effective teaching through the use of appropriate trained teachers that are ready to impart knowledge, by using principles of learning, apply the appropriate tasks that address the principles of teaching and to seek the feedback using appropriate methods.

Therefore, the study is focused on these three things with the hope that if these factors are considered there will be improvement in Mathematics performance. As a result, the researcher will elucidate what is meant by effective teaching, the principles of teaching, the tasks involved in applying the principles of teaching and how to seek feedback on the theoretical and practical aspect of the framework (Adepoju & Oluchkwu, 2011). Effective teaching involves efficiently dispersing material to students in a competent manner (Adepoju & Oluchkwu, 2011). There are many ways of teaching, but some are more effective than others. A definition of effective teaching is teaching that utilizes instructional strategies that are most appropriate for the content and the student and is carried out in a proficient manner that allows for real learning (Adepoju and Oluchkwu, 2011) . When sitting in a classroom, we all like to feel a connection with the teacher.

This connection allows the learners to feel comfortable and safe asking questions. Creating this connection leads to effective teaching, which is something most teachers strive to achieve. The two main types of learning methods are student-centered, which is the preferable method, and teacher-centered. Student-centered learning involves using a variety of teaching strategies to meet the individual needs of the students, such as modifying assignments to fit students(Crosnoe, Johson and Elder, 2004) . Even though this is the best method, there are times when teacher-centered methods need to be used in the classroom. This method requires the activity to be focused on the teacher. For example, when introducing a new concept, the teacher may need to be the center of attention with a lecture or presentation (Afemikhe, 2018).

Principles are important for the governing of actions and to operation of techniques in any field of education. Principles are the fundamentals through which we proceed from one situation to another (Crosnoe, Johson and Elder, 2004). Principles are the chief guides to make teaching and

learning effective and productive. Principle also refers to the psychological laws of learning, to important educational theories, to the statements of facts, to governing laws or rules of conduct, and to generally accepted tenets. Principle is accepted as a fundamental truth, and it may consider a comprehensive law, a doctrine, a policy or a deep-seated belief governing various types of human endeavor. In general, the term principle is often used to mean any of general truth or guiding norm by which a process is carried on, as when we speak of mathematical principles.

According to Webster (2020) principle is a comprehensive law or doctrine from which others are derived or on which others are founded. Ayer (1989), defined "the term principle is most frequently used, to signify a generalized statement through which otherwise unrelated data are systematized and interpreted. In the Language of Hopkins, "a principle is a rule for guiding the ship of education so that it will reach the port designated by the philosophy of education; it is a compass by which the path of education is directed. Therefore, a principle, when it is understood and accepted, serves in important ways to guide his reflective thinking and his choice of activities or actions. True principles explain educational processes and show how things are done and how educational results are achieved (Crosnoe, Johson and Elder, 2004).

Almost every task that a teacher is expected to perform on a daily basis falls into one of six categories. Some of these duties—such as lesson planning, classroom management, and assessment—are so critical that they are used by teacher assessment tools to evaluate teacher effectiveness(Cassady & Johnson, 2002). Others are more basic organizational and operational chores. Lesson planning is a critical aspect of teaching that often happens days before a lesson is taught. Planning, developing and organizing instruction are some of the biggest duties of the job. Assessment should take place in your classroom every day, whether it is formative or summative. You will not be able to tell if your instruction is working if you don't regularly test student comprehension. As you sit down to develop a lesson, you need to also include systems for measuring how well students have achieved its learning goals. Do the same for entire units and subjects. An often-overlooked teaching task that makes all the difference between a good teacher and a great one is research (Idu, 2013).

Teachers must make determinations about what will best suit their classroom in terms of lesson delivery, accommodations, and modifications for differently able students, student work structures, and more. Many new teachers find this area of teaching most intimidating. But with a couple of tools and a little practice using them, you can create a practical classroom management policy to help you keep your classroom under control. Every teacher must meet certain professional obligations depending on their school, district, state, and area of certification (Tam, 2000). These ranges from menial tasks such as hall duty during a planning period or after school to more involved tasks like those needed to meet requirements for recertification (professional development, college courses, etc.). For many teachers, the abundance of paperwork that comes with the job is the most annoying part. To have to spend time taking attendance, recording grades, making copies, and documenting student progress are all necessary evils. These housekeeping and recordkeeping tasks are just part of the job description. The teachers have to address the principle of education by performing the tasks explained above (Cassady & Johnson, 2002).

Feedback is defined as a proper collection, interpretation and use of information in regards to learning. It gives the teacher a better awareness about the knowledge of learners and their understanding and what learning experiences are also about their skills and personal characters and capabilities. The feedback should be in sync and supportive of learning, it should be and should be valid, the assessment should be proper and manageable, it should support the judgment of a teacher and lastly, it should support accountability. Summative comes from the word summary (Tilestone, 2007). The summative assessment arrives at the very end of the learning sequence and is used to record the students' overall achievement at the end of learning. The primary objective of the summative assessment is to measure a student's achievement post instructions or learnings.

Formative assessment includes a variety of formal and informal assessment procedures used by teachers in the classroom to modify the teaching and improve the student's attention retention and learning activity (Fehintola & Johnson, 2018). This is concerned only with evaluating assessment. The overall idea is to evaluate the assessment in the school or in the system or in the department. Evaluation of candidates helps in assessing and judging whether the candidates are capable enough for the learning program. Evaluative assessment is done only to evaluate and grade the candidates(Cassady & Johnson, 2002). When the objective is to identify individual strengths and areas of improvement, diagnostic assessment is the one that is used. It helps to inform the next steps in the assessment bike, including the strengths and weaknesses, areas of improvement, and other characteristics.

Unlike Evaluative assessment, the diagnostic assessment does not aim to grade the candidates, but rather it helps in diagnosing the issue after which the teacher can take steps to address it. Norm-referenced tests commonly known as NRT tests, are used to assess or evaluate the tested individuals' position against a predefined group on the traits being measured (Timilehin, 2010). The term normative assessment means the process of comparing one test taker to his seniors or peers. Performance-based assessment, is also known as education assessment in which the student's skills, attitudes, knowledge, and beliefs are checked to improve learning. The assessment year used at times done with the test, but not only confirms to tests, and it can extend to class, workshop and real-world applications of knowledge used by the student. Selective response assessment refers to the objective assessments, including multiple choice true or false and matching questions. It is a very effective and efficient method to measure students' knowledge and is also the most common method of assessment for students in the classroom (Elui, 2008). Authentic assessment is intellectual assessments that are worthwhile, significant and substantial are measured by authentic assessment.

In contrast, to standardize tests, authentic assessment provides deep insights into the student. It focuses on enabling students to acquire skills required for demonstrating their capabilities and competencies in a more authentic setting (Burden and Byrd, 2010). A criterion-referenced test is assessment that determines the student's performance against a fixed set of pre-determined and agreed-upon criteria for students' learning. Unlike norm-referenced test, no reference is made against a criterion other than a benchmark, a human being or another student. Written and oral assessments include projects, term papers, exam papers, essays etc. The primary objective behind the written assessment is to determine the knowledge and understanding of the student. Written

assessments are performed under teacher's supervision, and the questions are given on the assessment day with limited time to answer the questions (Brew, Nketiah and Koranteng, 2021).

Statement of the problem

If Mathematics is a fulcrum for all science disciplines, then the teaching-learning process of it must be given adequate recognition and attention that it deserves for this nation to be able to get to the promised land in terms of technology emancipation. All hands must be on deck to make sure that the number of applicants applying for this course is on the increase annually, and to do this, the performance in Mathematics must be enhanced. Therefore, this study is trying to look at the event surrounding the teaching-learning of Mathematics from principles of teaching to the preparation and implementation of tasks required. It also looks in to implementation of the principles of teaching and to make sure that the teachers use the appropriate feedback to cross-check their efforts while they are discharging their duties. Finally to see whether the poor performance emanated from teaching-learning process or otherwise. The essence of this is to see the kind of practices across our levels of education to enforce the best practices across the schools in Nigeria.

Purpose of the study

The general purpose of this study is to examine the principles of teaching that Mathematics teachers consider when designing teaching tasks, the types of tasks that address the principles being implemented and how they seek feedback on the theoretical and practical aspect of the framework by the mathematics teachers in primary, secondary, colleges of education and university in Oyo state. This study, therefore, generates the following specific objectives:
1. exploring what principles the teachers, consider when designing teaching tasks.
2. exploring the types of tasks address the principle mentioned above (ie. In purpose one) and
3. exploring the ways the teachers take seek feedback on the theoretical and practical aspect of the framework.

Research questions
1. What principles do the teachers consider when designing tasks for teaching?
2. What types of tasks address the principles that the teachers consider when designing tasks for teaching?
3. How do the teachers seek feedback on the theoretical and practical aspects of the framework?

Research Methodology

The research design used in this study is a descriptive research design of survey type. This research design was used because the researcher would only establish the relationship between independent and dependent variables and will not manipulate any variable in any form. The population for the study comprises all Mathematics teachers in primary, secondary and university in Ibadan. The sample for this study comprised two hundred and forty-one (241) mathematics teachers randomly drawn from primary, secondary schools and university of Ibadan, Ibadan in Ibadan Metropolis, Nigeria using simple random sampling. The participants are male and females within the ages of 47 and 57.5 years, made up of different tribes in Nigeria. Seventy-six teachers were picked among the primary school teachers that claimed to be teaching

mathematics and with evidence that they certificated in mathematics while 154 Mathematics teachers were selected among secondary school teachers and 11 lecturers were selected among mathematics teachers in university of Ibadan respectively. 67.21% has no teaching qualification while the majority of so called primary school mathematics teachers are not teaching mathematics alone and all the university teachers are having teaching qualification plus some secondary school mathematics teachers. The distribution of Mathematics teachers by gender indicated that 76.6% are males and the rest 23.4% are females

The instruments used for the collection of data were designed by the researcher:
The Principle of Teaching Check Lists (PTCL): It was developed by researcher for the purpose of this study and comprises of existing principles of teaching. It has 20 items. It has 0.81 reliability coefficient. The response format was, the teacher will need to tick the one that is applicable to him/her in course of teaching mathematics. The Tasks put in place to address the Principle of teaching claimed to using: This instrument too was prepared by the researcher and it contains the lists of 10 different tasks that Mathematics teachers need to apply in teaching mathematics in line with the principles of teaching. There are 6 items in all and they were found useful for this study. The items have internal validity and a reliability coefficient of 0.63. The Feedback Inventory (FI): It was developed by researcher for the purpose of this study and comprises of existing feedback methods for teaching-learning process. It has 10 items. It has 0.73 reliability coefficient. The response format was, the teacher will need to tick the one that is applicable to him/her in course of teaching mathematics.

Administration of instrument
The researcher visited the six biggest primary school in each local government that made up of Ibadan Metropolis and two biggest secondary schools in each of six local government areas that made up of Ibadan Metropolis and university of Ibadan Mathematics department and all the Mathematics teachers in this schools were used except in University of Ibadan where only eleven lecturers used. The researcher introduced himself to the respondents in each school visited so as to get permission for instruments to be administered. The instrument was administered with the assistance of a trained research assistant on the purpose of the research. This ensured adequate information was collected across all schools on its purpose while confidentiality was also assured. The data collected from the administration of the questionnaire were analyzed using frequency count and percentages.

Data analysis and Interpretation of results
Research Question 1: What principles do the teachers consider when designing tasks for teaching?

Table 1: Frequency Counts Showing the Principles that the Teachers Consider when Designing Tasks for Teaching

SN	Principles	PST	SST	UT	%
1	Students' beliefs or perceptions about intelligence and ability affect their cognitive functions and learning	×	√	√	66.7
2	What students already know affects their learning.	√	√	√	100.
3	Student's cognitive development and learning are not limited by general stages of development	√	√	√	100
4	Learning is based on context. Generalizing learning to new contexts is not spontaneous; it needs to be facilitated.	√	√	√	100
5	Acquiring long-term knowledge and skill is largely dependent on practice	√	√	√	100
6	Clear, explanatory and timely feedback to students is important for learning	×	×	√	33.3
7	Teachers can help students learn self-regulatory skills in several ways:	×	×	×	0.0
8	Teachers can foster creative thinking in students	×	√	√	66.7
9	Students tend to enjoy learning and to do better when they are more intrinsically (rather than extrinsically) motivated to achieve	×	√	√	66.7
10	Students persist in the face of challenging tasks and process information more deeply when they adopt mastery goals rather than performance goals	×	√	√	66.7
11	Teachers' expectations about their students affect students' opportunities to learn, motivation and learning outcomes	×	√	√	66.7
12	Setting goals that are short term (proximal), specific and moderately challenging enhances motivation more than establishing goals that are long term (distal), general and overly challenging	×	√	√	66.7
13	Learning is situated within multiple social contexts	×	√	√	66.7
14	Interpersonal relationships and communication are critical to both the teaching-learning process and the social-emotional development of students	√	√	√	100
15	Emotional well-being influences educational performance, learning and development	×	×	√	33.3
16	Expectations for classroom conduct and social interaction are learned and can be taught using proven principles of behavior and effective classroom instruction	√	√	×	66.7
17	Effective classroom management is based on Teachers competencies	√	√	√	100
18	Formative and summative assessments are both important and useful, but require different approaches and interpretations	√	√	√	100.
19	Student skills, knowledge and abilities are best measured with assessment processes grounded in psychological science with well-defined standards for quality and fairness	√	√	×	66.7
20	Making sense of assessment data depends on clear, appropriate and fair interpretation	×	×	×	0.0

Key: PST > Primary School Teachers, SST > Secondary School Teacher & UT > University Teacher

The results from Table 1 indicated that all the three categories of teachers used in this study are well familiar with the principles of teaching. However, the majorities of these teachers are deficient in the following principles of teaching and refused to put them in to consideration in discharging their duties. The principles where they failed to perform are: Clear, explanatory and timely feedback to students is important for learning, teachers can help students learn self-regulatory skills in several ways, emotional well-being influences educational performance, learning and development and making sense of assessment data depends on clear, appropriate and fair interpretation.

Research Question 2: What types of tasks address the principles that the teachers consider when designing tasks for teaching?

Table 2: Frequency Counts Showing the Types of Tasks Addressing the Principles that the Teachers Consider when Designing Tasks for Teaching

SN	Types of Tasks	PST	SST	UT	D
1	Resources provider	√	√	√	100.0
2	Instructional specialist	√	√	√	100.0
3	Curriculum specialist	√	√	√	100.0
4	Classroom supporter	√	√	√	100.0
5	Learning facilitator	√	√	√	100.0
6	Mentor	√	√	√	100.0
7	School leader	√	√	√	100.0
8	Data coach	×	×	×	0.00
9	Catalyst for change	×	×	×	0.0
10	Learner	×	×	×	0.0

Key: PST > Primary School Teachers, SST > Secondary School Teacher & UT > University Teacher

The results from Table2 indicated that the types of tasks address the principles that the teachers consider when designing tasks for teaching are not sufficiently used most especially in the areas like data coach, catalyst for change and learner. All the category of teachers failed woefully in these three areas as it can be seen in the table above.

Research Question 3: How do the teachers seek feedback on the theoretical and practical aspect of the framework?

Table 3: Frequency Counts Showing the Ways the Teachers Seek Feedback on the Theoretical and Practical Aspect of the Framework

SN	Different Ways of Carrying out Feedback	PST	SST	UT	D
1	Summative assessment	√	√	√	100
2	Formative assessment	√	√	√	100
3	Evaluative assessment	×	×	√	33.3
4	Diagnostic assessment	×	×	×	0.0
5	Norm-referenced tests	×	×	×	0.0
6	Performance-based assessment	√	√	√	100
7	Selective response assessment	×	√	√	66.7
8	Authentic assessment	×	×	×	0.0
9	Criterion-referenced tests	×	×	×	0.0
10	Written and oral test(Project, Term paper, Long essays, Exam papers)	×	×	√	33.3

Key: PST > Primary School Teachers, SST > Secondary School Teacher & UT > University Teacher

The results from Table 3 showed that all the three categories of teachers are not assessing the learners on the following methods of assessment. The teachers are not conducting assessment that are based on evaluative assessment, diagnostic assessment, norm-referenced tests, authentic assessment, and criterion-referenced tests and written and oral test. They usually conduct summative assessment, formative assessment, performance-based assessment and selective response assessment.

Discussion of findings
The first research question which raised the question on principles that the teachers consider when designing tasks for teaching indicated that the primary and secondary school teachers are aware of the required teaching principles more than the university Mathematics teachers. This is a reflection that the university teachers did not pass through educational training that could have made them to understand the principles of teaching therefore the university teachers in this aspect failed woefully. Another factor worthy to be discussed is that all the three categories of teachers failed to perform these four teaching principles in the sense that all the teachers in primary, secondary and university institution did lecture instead of teaching and that is why non could not understand that "clear, explanatory and timely feedback to students is important for learning", "teachers can help students learn self-regulatory skills in several ways", "emotional well-being influences educational performance", "learning and development and making sense of assessment data depends on clear, appropriate and fair interpretation".

The second research question which stated that what types of tasks address the principles that the teachers consider when designing tasks for teaching, the results indicated that all the categories of the teachers are not putting up adequate tasks most especially in the area of setting the examination questions, administering examination, marking the examination papers and interpretation of examination scores. This is an indication that the Mathematics teachers are not putting appropriate tasks in the area examining learners. This may be as a result that there are many students such that processing of examination papers may sap their energy. Another

possibility is that they may not adequate knowledge or technical knowhow on the setting of question papers and processing of examination papers and results. This could be one the reasons while the learners are failing mathematics in large proportion year in year out, because the testees are not exposed to the rightful types of questions they suppose to.

The third research question which has to do with how the teachers seek feedback on the theoretical and practical aspect of the framework came out negatively. The findings on this research question indicated that Mathematics teachers used in this study are not adequately exposed to tests, measurement and evaluation when they are in training. From all indications the Mathematics teachers are not even aware of many ways that the learners are supposed to be tested. Among the ten different ways that the learners can be assessed only four are well known and practiced by the participants used in this study. Some of the methods that are good and that scrutinize learners very well are not been practice by the teachers, example are project, term paper and long essays and many others like evaluative assessment, diagnostic assessment, norm-referenced tests, authentic assessment, and criterion-referenced tests. Mathematics teachers in primary and secondary schools thought that majority of these methods of assessment are for tertiary institutions and vice-versa.

Conclusion

Based on the findings of this study, the researcher concludes that the teachers have adequate knowledge of the principles of teaching that the teachers suppose to consider when designing tasks for teaching but deficient in the types of tasks to address the principles of teaching that the teachers consider when designing tasks for teaching and finally the teachers do not know how to seek feedback on the theoretical and practical aspect of the framework.

Recommendations

In order to improve the teaching-learning process in Mathematics with the ultimate aim of improving the performance in Mathematics in Ibadan, Oyo state, Nigeria, the following suggestions are made:

1. The in-service teachers should be given proper training on principles of education vis-à-vis training on how to conduct examinations.
2. The trained teachers should be the only set of teachers to be recruited to teach at various levels of the education in the state.
3. At the training centers for will be Mathematics teachers the principles of teaching, the tasks involved and the various ways to examine the learners should be exposed to them.
4. The Mathematics teachers should be aware that frequent tests and quizzes are required for the students to be able to perform well in Mathematics.
5. Mathematics teachers should know that it is part of the function to let the students know how to practice mathematics on their own.

References

Adediwura, A. A., 2012. Teachers' Perception of School-based Assessment in Nigerian Secondary Schools: Mediterranean Journal of Social Sciences. Vol. 3 (1)

Adepoju, T. L. and Oluchukwu, E. E., 2011. A study of Secondary School Students' Academic Performance at the Senior Secondary School Examination and Implications for

Educational Planning and Policy in Nigeria: An International Multidisciplinary Journal, Ethiopia. Vol. 5 (6) 23

Afe, J. O., 2001. Reflections on becoming a teacher and the challenges of teacher education: Inaugural lecture: Series 64. University of Benin, Nigeria

Afemikhe O. A., 2018. Effecting Evidence-Based Teaching and Learning: Keynote Address presented at the EARNIA 4th International Conference Ghana.

Ayer, A. J. 1989. Importance of Principles in Teaching. Random House Webster's Unabridged Dictionary.

Brew, E. A., Nketiah, B. and Koranteng, R., 2021. A Literature Review of Academic Performance; An Insight into Factors and their Influences on Academic Outcomes of Students at Senior High Schools. Open Access Library Journal vol. 8

Burden, P. P., and Byrd, D. M., 2010. Method for Effective Teaching: Meeting the Need of all Students, 5th edition. Pearson Educational Inc.

Cassady, J. C. and Johnson R. E., 2002. Cognitive Test Anxiety and Academic Performance: Contemporary Educational Psychology. 27, 270–295

Crosnoe, R., Johnson, M. K., and Elder, G. H., 2004. School Size and the Interpersonal Side of Education: An Examination of Race/Ethnicity and Organizational Context. Social Sciences Quarterly 85(5), 1259-1274

Elui, E. P., 2008. Integrating Assessment into Lesson Plan to Improve Learning; Focus on Nigerian Primary Schools. Paper presentation during 34th Annual Conference, International Association for Educational Assessment

Fehintola, J. O., and Johnson, F. G., 2018. Teacher's Effectiveness and Instructional Material as Determinants of Students' Performance in Mathematics among Secondary School Students in Ibadan Nigeria

Fehintola, J. O., 2011. Analysis of Students' Perceived and Actual Weaknesses as Correlates of Performance in Mathematics in Senior Secondary School Certificate Examination in Oyo State, Nigeria: Journal of Applied Psychologist 12/13(2/1), 211-229

Idu, G. O., 2013. Assessment Tools and Techniques used by Teachers in the Implementation of Government Curriculum in Secondary Schools in Enugu Education Zone. Master Thesis in Curriculum Studies: Department of Art Education, University of Nigeria, Nsukka.

Tam, M., 2000. Constructivism, Instructional Design, and Technology: Implications for Transforming Distance Learning. Educational Technology and Society 3 (2)

Tilestone, D. W., 2007. What Every Teacher Should Know About Effective Teaching Strategies. Hawker Brownlow Education, U.S.A.

Timilehin, H. E., 2010. Administering Secondary Schools in Nigeria for Quality Output in the 21st Century: The Principal Challenge: In European Journal of Education Studies 2(3), ISSN 1946-6331