



## **ASSESSMENT OF INSTRUCTIONAL PRACTICES TOWARD THE IMPLEMENTATION OF BASIC ELECTRICITY SUBJECT IN SENIOR SECONDARY SCHOOLS IN BAUCHI STATE**

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### **Abstract**

*This paper assesses the instructional practices toward the implementation of Basic electricity subject in senior secondary schools. Two research questions guided the study, the respondents consisted of 64 Basic electricity subject teachers in Bauchi state; total population sampling techniques was used because of the small size of the population. Therefore, the entire population was considered to be sample of the study. A structured questionnaire titled Assessment of Instructional practices toward the implementation of Basic Electricity Subject in Senior Secondary Questionnaire (AIPIBESSSQ) was used as instrument for data collection. The instrument was face validated by experts and a reliability coefficient of 0.78 was obtained using the Cronbach's Alpha Reliability method. Mean and standard deviation was used for data analysis. The study revealed that Basic electricity teachers employed good numbers of instructional strategies on average with exception of few. It was also found that the Basic electricity teachers used appropriate assessment strategies in the implementation of the subject. Based on the findings, it was recommended that Basic electricity teachers should be up to date in their instructional practices for effective implementation of the subject.*

**Keywords:** Assessment, Instructional practices, Implementation, Basic electricity Subject, Senior Secondary Schools

### **Introduction**

Basic electricity as a trade subject in Nigeria Secondary Schools is activity-oriented and the suggested method for teaching it, which is guided discovery method, is resource based, Federal Republic of Nigeria (FRN, 2013). Basic Electricity, like other trade, is both empirical as well as conceptual and its study entails the learning of concepts, established principles and a lot of laboratory/workshop activities. These laboratory works are conceived to demonstrate practically some of the principles taught in theory, tests, the validity of certain methods used and illustrate properties of units taught theoretically in the classroom.

The rate of youth unemployment is increasing daily, especially in the developing countries. Attempts at solving this problem of unemployment among the youth led to the introduction of entrepreneurship/trade subjects at secondary schools in Nigeria. The philosophy of senior secondary education, according to Orji (2013), include preparation for higher education, acquisition of functional trade/entrepreneurship skills, and ability to uphold ethical, moral and civic values in the society. Trade subjects were introduced to the senior secondary schools in Nigeria to meet the key targets of the National

Economic Empowerment and Development Strategy (NEEDS). This initiative is for entrepreneurship empowerment of youths for employment generation, poverty eradication, and wealth creation in the society (Yusuf, 2018).

The ever-increasing technological advancement and surge of unemployed graduates in the country have necessitated the inclusion of more technology and vocational-oriented subjects into the school curriculum. Technology education can be seen as the planned programme(s) of learning in the different technology areas to develop students' talents and the capacity to design and create new or improved technologies to solve practical problems of the society. According to NYSED, (2011) technology education is an integrated programme of instruction from the disciplines of science, mathematics, social sciences, engineering and language arts to stimulate and guide students' understanding in the design and development of systems, devices, and products to meet the needs and wants of the society. Vocational education assumes that a choice of an occupation has been made and that appropriate training is needed to enable the individual enter or advance in his chosen occupation.

While the Assessment as a concept is the process of gathering data from diverse sources in order to have a clearer understanding of the learner's attributes during the period of teaching and learning (Asuru, 2015). Assessment refers to the wide variety of methods or tools that educators use to evaluate, measure, and document the academic readiness, learning progress, skill acquisition, or educational needs of students. In this study, the term assessment strategy is used to refer to all measures used by teachers of technical education to determine the extent to which their learners have achieved learning goals and whether they can apply the skills taught in a given period of time.

Similarly, Vocational and Technology Education is capable of developing students' mentally, creating environment for continuous knowledge and skills needed in the world of work. Vocational Technology Education is a workshop-based education designed for equipping individuals with the cognitive, psychomotor, affective and perceptual skills (Evason and Ekong, 2014). The aim of Vocational Technology Education is to provide education for self-reliance and to earn a successful living in an occupation. It is a catalyst for employment, prime agent for empowerment and self-actualization. Vocational Technology Education according to the Federal Republic of Nigeria (2014) is that aspects of the educational process involving in addition to general education, the study of science and technology, acquisition of practical skills, attitude, understanding and knowledge relating to occupation in various sectors of economic and social life.

### **Statement of the Problem**

The basic reason for the teaching and learning of Basic electricity subjects in senior secondary schools is to prepare students to function intelligently in the world of work, and also to meet entry level employment needs in the competitive world. Most recently new subjects have been introduced/offered under the "Trade" component of the new secondary education structure. However, one of the benefits associated with the introduction of vocational skills into senior secondary schools is the reduction of the number of school leavers without employable skills. The acquisition of these skills seems to have some inherent constraints in senior secondary schools due to lack of modern instructional strategies and proper assessment methods, as well as the implementation of the Basic electricity curriculum at secondary school level of education in Bauchi State. In the light of the above, the study assessed the instructional practices towards the implementation of basic electricity subject at secondary school level of education in public senior secondary schools in Bauchi state.

## **Purpose of the Study**

The aim of this study is to assess the Instructional practices towards the implementation of Basic electricity subject in senior secondary schools in Bauchi state. Specifically; the study sought to find out:

1. The instructional strategies used by teachers in the implementation of Basic electricity subject in senior secondary schools in Bauchi state.
2. The methods of assessment used by teachers for the implementation of Basic electricity subject in senior secondary schools in Bauchi state.

## **Research Questions**

The following research questions were formulated based on the research objectives to guide the study.

1. What are the instructional strategies used by teachers in the implementation of Basic electricity subject in Senior Secondary Schools in Bauchi state?
2. What are the methods of assessment used by teachers for the implementation of Basic electricity subject in Senior Secondary Schools in Bauchi state?

## **Literature Review**

### ***Implementation of Trade Subject in Senior Secondary Schools***

According to Ahmadi and Lukman (2015), Curriculum implementation refers to, “how the planned or officially designed course of study is translated by the teacher into syllabus, scheme of work and lessons to be delivered to students”. Similarly, Francisco and Celon (2020) defined Curriculum implementation as “the task of translating the curriculum document into action by the combined efforts of the school authority, teachers and students”. Curriculum implementation could also be defined as an interactive and cooperative process for the timely and adequate supply of learning resources under the teacher’s skilful and systematic management of learning processes to achieve desired learning outcomes.

Implementation of technology subject at the secondary school level will help to prepare the individual for gainful employment as semi-skilled or skilled workers in a recognized occupation. Through the programme, the three domain of learning is taken care of, that is the affective, psychomotor and cognitive domains of the individual in readiness for entry into the world of work (FRN, 2014; Odu, 2010). It has become imperative that implementation of vocational education will help to curb the menace of unemployment in our society; where skills are readily acquired; the graduates will not only seek for employment but also become an employer of labour. Invariably, this will make the youth to attain economic or financial freedom.

At the Senior Secondary level, recommended vocational /technology subjects include: Agricultural Science, Clothing and Textile, Home Management, Food and Nutrition, Typewriting & Shorthand, Principles of Accounts, Commerce, Woodwork, Technical Drawing, Basic Electronics, Building Construction, Basic Electricity and Auto Mechanics (Senior Sec. National curriculum) (Asuru 2015; Evanson & Ekong 2014). According to ITEA (2006), Technology education is defined as a programme in the various aspects of technology areas designed to help students attain technological literacy. ITEA (2006) further explains that, technological literacy is the “ability to use, manage, evaluate and understand technology”. Francisco and Celon (2020) also described technology as the process by which humans modify nature to meet their needs and wants.

Technology education as integrated programme of instruction from the disciplines of science, mathematics, engineering, social science and language arts designed to stimulate and guide students' understanding in designing and developing systems, devices, and products to meet the needs and wants of the society (NYSED, 2011).

Brewer (2010) affirms that, the changes that took place in the field were centred on the nomenclature, content and practice. Brewer further says, the major reason behind these changes is the rapid technological change and innovations creating new industries requiring advanced knowledge, skills and competencies. As a result, the education systems keep changing to meet up with the changing societal values and expectations. This is the main reason for the time-imposed change and adoption of the current Technology Education. The rationale for Technology Education is linked to the rapid and complex technological growth revolutionizing all aspects of human activities; and remarkably influencing the economic, social, political, cultural and physical environmental conditions with unprecedented speed.

Vocational and Technology Education constitutes that aspect of education and training that emphasized on the acquisition of practical skills as well as basic scientific knowledge which are vital to the improvement of man's material wellbeing (FRN, 2014). As stated by Orji (2014), the trade subjects help to impart on the new breeds of school leavers the spirit of enterprise and industry. They prepare students for self-employment (for wealth generation and poverty alleviation) and promote occupational aspirations and job readiness.

Ayonmike (2010) posited that empowering youths with appropriate practical skills is very imperative in view of the increasing rate of social ills and other negative consequences with joblessness. Schooling in Nigeria must prepare the young generations from the primary through secondary and university education to tackle the problem of self-reliance rather than thinking of government employment only (Olusola and Salau 2012). Hence, the need for sound education cannot be under scored for national development.

Trade and Entrepreneurship subjects have been entrenched into the new senior secondary education to empower and equip the students with necessary skills and ideas that will enable them become functional members of the society right from the completion of their secondary education. In Nigeria for instance, Secondary School curriculum is designed to encourage all students to achieve their spiritual, intellectual and social potential as well as to understand the relevance of learning in their daily lives (FRN, 2013) Curriculum as "planned and guided learning experiences and learning outcomes formulated through the systematic reconstruction of knowledge and experiences under the auspices of the school, for the learners' wilful growth in personal-social competence" the foregoing must be driven by teachers (Udesen, 2016). Therefore, teachers in the implementation of senior secondary school trade subject particularly, Basic electricity subject requires considerations for successful implementation.

The Nigerian educational curricula have undergone several reviews in a bid to provides vital and relevant education to empower its citizenry; curricula which is the plural form of curriculum can be seen as a compendium of educational activities sequentially compiled into various subjects for basic and senior secondary education in Nigeria by subject groupings and administered based on predefined school programmes or course of study to inculcate in the learners, certain set objectives (Nwachukwu, 2016). Indeed, this requires teacher specifically the Basic electricity teachers to use an appropriate evaluation strategy.

**Methodology**

The study adopted survey research design which involved the collection of information from a sample of individuals through their responses to predetermined questions. Survey design was chosen for this study as it is most appropriate for gathering information. The population of the study comprised of 64 Basic electricity subject teachers in senior secondary schools in Bauchi state. The entire population was used for the study, since the population was small and manageable. Structured questionnaire was used as an instrument for data collection; title Assessment of Instructional Practices toward the Implementation of Basic Electricity Subject in Senior Secondary Questionnaire (AIPIBESSSQ). The questionnaire was face validated by experts. Cronbach alpha reliability technique was used to determine the reliability of the instrument which yielded a reliability coefficient of 0.82, thereby indicating that the instrument was reliable and capable of eliciting pertinent results for answering the research questions.

The instrument was designed with a 4-point Likert scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD). The data collected were analysed using mean and standard deviation for answering the research questions. The decision rule for the questionnaire items was based on the scale mean of 2.50. Any item with a mean rating of 2.50 and above was considered to be accepted while any item with mean responses below 2.50 was considered as rejected.

**Results and Discussion**

The tables below present the results from the analysed data for the purpose of answering the research questions in the study.

**Table 1:** Mean and standard deviation rating of the respondents on instructional strategies towards the implementation of Basic electricity subject in senior secondary schools

S/N	Items	Mean	S D	Remarks
1	Basic electricity teachers used apprentice teaching strategy	2.66	0.62	Agreed
2	Basic electricity teachers organize students for self-directed learning/instruction	2.69	0.89	Agreed
3	Teachers used drill and practice for teaching lesson/practical in Basic electricity	2.69	0.75	Agreed
4	Basic electricity teachers used project method of teaching	2.53	0.76	Agreed
5	Used pictures and charts to explain some Basic electricity concepts in the classroom	2.86	0.71	Agreed
6	Basic electricity teachers encourage students' participation in the class through questioning technique	2.66	0.80	Agreed
7	Basic electricity teachers organize students to team/group participation in practical session of the class	2.78	0.98	Agreed
8	Teachers use demonstration method for teaching Basic electricity	2.91	0.81	Agreed
9	Basic electricity teachers encouraged Participation among students in project work in technology vocational education programmes	2.70	0.68	Agreed
10	Individual instructional teaching strategy is considered in practical session of the class	2.45	0.66	Disagreed
<b>Grand mean</b>		<b>2.69</b>	<b>0.77</b>	<b>Agreed</b>

All the items of the research question one were accepted by the respondents, which grand mean of 2.69 and mean scores ranging from 2.53 to 2.91, except item 10 which is below the bench mark. This indicated that Basic electricity teachers were not using individual instructional strategies for their teaching in senior secondary schools in Bauchi state.

**Table 2:** Mean and standard deviation rating of the respondents on assessment strategies in the implementation of Basic electricity subject in Senior Secondary Schools in Bauchi State

S/N	Items	Mean	S D	Remarks
1	Product assessment method	2.51	0.91	Agreed
2	Peer-review techniques	3.08	0.90	Agreed
3	Formative evaluation to improve teaching effectively	2.56	0.87	Agreed
4	Psycho productive test to measure students' practical ability after instruction monthly	2.97	1.02	Agreed
5	Checklist assessment strategies	2.69	0.89	Agreed
6	Oral examination	1.89	0.93	Disagreed
7	Interviewing assessment techniques	2.60	0.77	Agreed
8	Summative evaluation method	3.00	0.69	Disagreed
9	Initial assessment strategies	3.04	0.88	Agreed
10	Observation assessment strategies	1.91	1.00	Disagreed
	<b>Grand mean</b>	<b>2.56</b>	<b>0.89</b>	<b>Agreed</b>

All the items of the research question two were agreed by the respondents for the successful assessment of instructional practices toward the implementation of Basic electricity subject, which grand mean of 2.56 and mean scores ranging from 2.51 to 3.08, except items 6 and 10 had mean scores of 1.89 and 1.91 (Oral examination and Observation assessment strategies) which are below the bench mark. This indicated that teachers were not agreed with oral and observation strategies for the instructional practice toward the implementation of Basic electricity subject in senior secondary schools in Bauchi State.

**Discussion of the Findings**

Findings of this study on research question two revealed that Basic electricity teachers uses all the instructional strategies available for them, except individual instructional strategy in practical class in the implementing the curriculum/subject in senior secondary schools in Bauchi state. To support that Odongo (2010) stated that all smart school teachers use a variety of teaching strategies. This is because a teaching strategy for effective teaching of a given topic or lesson may not be effective for another, in the same vein, a teaching strategy which was effective yesterday may not be so today Odongo. This in line with the findings of Nwosu and Ibe (2012), and Albert (1990) in Ishiya (2004) respectively, who found that the teachers place much emphasis on teaching method and the implementation of the course contents which is mostly dominated by the used of traditional teaching techniques of instruction notably the lecture method to be detriment of the other instructional strategies.

Similarly, the result in table 2 revealed that the methods of assessment used by teachers for the implementation of Basic electricity subject in Senior Secondary Schools in Bauchi state, includes product assessment, peer review techniques, formative evaluation, psycho product test, checklist assessment strategies, interviewing assessment techniques, giving assignment to each student at the end of each lesson and summative evaluation method were used by the teachers for assessing students practical skills acquisition in Basic electricity subject, except oral examination and observation

assessment strategies. The findings were in line with that of Okoro (2003) who opined that performance test should be used in assessing achievement of objectives in the psychomotor domain and practical performance test which involves setting students on a task and rating them as they work is the best for assessing psychomotor skills.

### Conclusion and Recommendations

Based on the finding of this study, it can be concluded that; Basic electricity teachers had, appropriate instructional strategies for teaching Basic electricity subject effectively in senior secondary schools in Bauchi state, for skills acquisition and practical content of the subject. However, the respondent strongly agreed with appropriate assessment methods used by Basic electricity teachers in senior secondary schools in Bauchi state. Based on the findings of this study, the following recommendations were made:

- i. Basic electricity teachers should be trained through workshop and seminars on the appropriate teaching methodologies for efficient lesson delivery.
- ii. Basic electricity teachers should be trained on how to use a variety of teaching and assessment methods given by dynamic nature of education. This trained should especially be administered to those who are ill-informed about the best practice of teaching and assessment strategies of trade subject.

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