

Contributory Factors to Students Learning Difficulties in Basic Technology in Junior Secondary Schools in Enugu State

by

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Abstract

The study is on Identified of factors that contribute to Students' Learning Difficulties in Basic Technology in Junior schools in Enugu State. The research design is survey. Two research questions guided the study. The sample size was 18 Basic Technology teachers and 360 basic technology students. A structured questionnaire was used for data collection. The instrument was validated by three experts and a reliability of 0.83 was obtained for the instrument. The study found among other things that the qualification of the basic technology teachers, lack of motivation of teachers, training and retraining of teachers, teaching experience among others are teacher related factors that contribute to students learning difficulties. Poor study habit of the students, attitudes of the students, lack of skill acquisition among others were student related factors. It was recommended among others that teachers should recognize and respond to the various causes of students' learning difficulties to make teaching and learning more effective.

Keywords: Technology, Basic Technology, Students, Teachers, Learning.

Introduction

Technology is a process developed by man to achieve or improve upon his needs on earth so as to derive satisfaction. Technology is also a means of not only providing the needs of the society but also ensuring the survival of individuals with respect to their basic needs of food, clothing and shelter (Uzoagulu, 1995). According to Udoh, Ikpe and Okon (2022) the implementation of science and technology in modern societies make the economy advantageous to citizens as they can explore a variety of options in terms of foreign and local businesses of any nation. In other words, technology is the use of knowledge, materials, practical skills, resources of energy and natural phenomena. Technology as further asserted by Beer and Mulder (2020) does not occur in a vacuum but is consciously developed and learned by man.

Innovations and changes by technological development obviously demands that skills adjustment is inevitable. Some manual skills have been replaced by the emergence of robots and computer software,

which needs skilled personnel to man. This necessitates the need to train and acquire relevant skills acquisition. If our nation today is to benefit fully from technology, people have to be trained for jobs and for the challenges that is facing labour market in the society. Our nation is blessed with mineral and agricultural resources and for economical utilization; therefore, it is pertinent that emphasis should be placed on the acquisition of skills through a well-structured technological curriculum in science and vocational education programme, such as basic technology.

Basic Technology is a subject that introduces students at the junior secondary level of education in Nigeria, to the fundamentals of technology. Formally, basic technology is known as introductory technology. Introductory technology as a subject, came with the introduction of the now defunct 6.3.3.4 system of education, which means six years of primary education, three years of junior secondary education, another three years of senior secondary education and

of course, four years of tertiary education. However, with the current 9.3.4 system of education, the title of introductory technology changed to Basic Technology. Noteworthy, in the curriculum for the new system, the National Policy on Education (FME, 2014) defines Basic Technology as the aspect of education which leads to acquisition of practical and applied skills as well as basic scientific knowledge. It is also a subject that deals with the fundamentals of engineering and technology. In order to reduce ignorance in relation to technology and help lay a solid foundation for true national development, Basic Technology has been recognized in the school curriculum as a core subject like English and Mathematics.

To attain this, Basic Technology as a subject has three main objectives as was stated by federal republic of Nigeria (FME, 2004); this includes: To provide pre-vocational orientation for further training in technology; to provide basic vocational literacy for everyday living and to stimulate creativity.

Considering these lofty objectives, the difficulties students face in learning and the vital role of Basic Technology in the development of a nation, it becomes imperative to critically identify the factors that contribute to student learning difficulties. This would require an enquiry into the availability of teachers, standard workshop, equipment and other tools to carry out effective teaching and learning in the schools that would reduce students learning difficulties.

Learning difficulties are problems experienced by learners in acquisition and use of literacy and practical skills e.g., reading difficulties, practical skills difficulties, mathematics computation and reasoning difficulties among others. Mindroom (2016) describe learning difficulty as a problem of understanding or an emotional difficulty that affects a person's ability to learn, carry out a task and get along with others and follow convention. The nature of science and

technology itself and its teaching methods are among the reasons for the difficulties in learning basic technology (Lazarowitz and Penso 2019). Overloaded basic technology curricula, the abstract and the nature of technological concepts, and other factors are preventing students from learning basic technology effectively.

Eze (2016) stated that learning difficulty may be said to exist in any situation where a student fails to grasp a concept or idea as the result of one or more of the following factors:

1. The nature of the ideas/knowledge system already possessed by the student, or the inadequacy of such knowledge in relation to the concept to be acquired.
2. The demand and complexity of a learning task in terms of information processing, compared with the student's information-handling capacity
3. Communication problems arising from language use, eg., in relation to technical terms or to general terms with context-specific specialized meanings, or the complexity of sentence structure used by the Teacher (compared with the student's own language capacity)
4. A mismatch between instructional approaches used by the teacher and the student's preferred learning mode or learning style.

It is important for a teacher to recognize and respond to these various causes of students learning difficulties. Doing this will not only reduce these difficulties, but also make teaching more effective. It has been found out that the students' difficulty in learning may also be due to many factors within the child himself. Some of the important factors according to Zaulda, Gee-Gee, and Asiri, (2024) which may affect the

learning process are as follows: classroom interaction, school environment, intellectual factors, learning factors, physical factors, mental factors, emotional factors, and social factors.

Effective parental guidance, particularly from educated and financially stable parents, significantly contributes to children's academic success. Parental engagement in education not

only impacts academic performance but also shapes students' social, emotional, and psychological development (Jason et al., 2023). The authors further stated that parental involvement encompasses various strategies, including social, discursive, and material support, all of which contribute to children's educational journey. Parental involvement emerges as a critical determinant of students' scholastic achievements, emphasizing the importance of fostering supportive home-school partnerships.

The term intellectual factor refers to the individual mental level. Success in school is generally closely related to level of the intellect. Students with low intelligence often encounter serious difficulty in mastering schoolwork. Knowledge of the nature of the student's intellect is of considerable value in the guidance and the diagnosis of disability. Many other kinds of difficulty which are directly related to learning factors may interfere with progress.

Physical factors include health, physical development, and nutrition, visual and physical defects. It is generally recognized that ill health retards physical and motor development, and malnutrition interferes with learning and physical growth. The health of the learner will likely affect his ability to learn and his power to concentrate. Emotional and social factors are personal to individual. Personal factors, such as instincts and emotions, and social factors, such as cooperation and rivalry, are directly related to a complex psychology of motivation. It is a

recognized fact that the various responses of the individual to various kinds of stimuli are determined by a wide variety of tendencies. Some of these innate tendencies are constructive and others are harmful. For some reason a student may have developed a dislike for some subject because he may fail to see its value, or may lack foundation. This dislike results in a bad emotional state. Some students are in a continuing state of unhappiness because of their fear of being victims of the disapproval of their teachers and classmates. This is an unwholesome attitude and affects the learning process to a considerable degree.

Also, Lazarowitz and Penso (2019) stated that teacher related factor which may affect learning process are quality of teachers. Teachers' qualification, teaching experience, difficult working conditions, teacher efficacy, teacher professionalism, time constraints etc. Poor quality of basic technology teachers in terms of adequate knowledge base and acquisition of practical skills is another factor identified to contribute to students learning difficulties. Professional qualification can be termed as the preparation for life long journey into the teaching profession. The basic skills, acquisition of practical skills and abilities of the teaching learning process are developed in a teacher through professional training and retraining.

Professional training can be categorized into pre-service and in-service professional training. The National Policy on Education (FME, 2014) states that the qualification for entry into the teaching profession shall be the Nigeria certificate in education (NCE). In support of the above assertion Amadi & Anero (2024) stated that National Certificate in Education (NCE) is the minimum teaching qualification required by a person to possess before becoming a teacher, and most of the teachers are also not professionally trained.

Teachers experience influences students' achievements in several ways.

Teachers with long experience use better classroom management approaches and adequate teaching methods that encourage students to acquire skills during practical. The teachers should be responsible for students learning needs, managing classroom problems and keeping students on task. Studies have established that inexperienced teachers are typically less effective than experienced teachers, However the benefits of experience appear to level after five years (Darling-Hammond, 2019). Not surprisingly, the greatest barrier to quality professional development is the difficult conditions in which teachers work. The lack of (irregular, delayed or low) remuneration, overcrowded classrooms, a lack of respect from school leaders and community members, violence in, to, and from school, too many needy students, and a lack of teaching and learning materials, all contribute to such difficult working conditions. As they would be for anyone, these conditions-both discretely and cumulatively are often highly demotivating for teachers and negatively affect important teacher characteristics, all of which are critical to effective teaching performance.

Teachers' efficacy beliefs are strongly correlated with teacher performance. Teachers with high self-efficacy believe that they can teach students well and believe they have a certain degree of control over both teaching and learning process and their performance. Efficacy also relates to teacher perceptions about students-a belief that their students can succeed academically. If teachers are poorly prepared, if they receive little or inadequate professional support particularly, if they teach children with acute emotional and academic needs, they may continue to lack confidence in their own abilities as teachers. Difficult working conditions, low status, gender bias, and teaching in hierarchical conditions often prompt teachers to look for alternative work and/or resist any attempts to enhance

increased professionalism-such as professional development-especially when teachers are not paid for extra hours or when they see professional development as not resulting in either improvement in their own practice or leading to promotion. Hierarchical, rigid education systems exacerbate this lack of professionalism by treating teachers as a problem, by not seeking their input or voice on decisions that affect teachers, and by dismissing concerns about pay or working conditions or safety. This lack of professionalism of teachers is often then a reflection of the lack of professionalism of the education system itself. Essentially, many teachers, so exhausted and worn down by this lack of professionalism, combined with the conditions in which they work, may resist change of any sort, systematic initiatives of any sort, or new ideas of any sort because they are simply trying to survive, physically or emotionally, in the face of so much adversity.

Teachers always expressed inadequate time as a constraint because they did not have enough time to identify and support learners' specific needs due to heavy workload. Teachers also complained about timetables which are 'fixed' and 'loaded' such that it becomes difficult to cater for learners with learning difficulties. Teachers are not able to find adequate time to prepare for the learners because they are engaged in teaching many classes. They give work; they do not have adequate time to mark as they identify individual learners. The study therefore identified the students and Teachers related factors that contribute to students learning difficulties in basic technology in secondary schools in Enugu State.

Statement of the Problem

Basic Technology in the junior secondary schools in Enugu State seems to be faced with a lot of challenges. Regardless of the need of basic technology, students still have difficulties in learning. Consequently, this has led to student's poor performance in

the subject. There are many reasons why students have difficulties in learning basic technology. Some of the problems among other factors include; students related factors, teacher-related factor, environmental-related factor and so on. Therefore, the study sought to identify those students and teachers related factors that contributes to students learning difficulties in Basic Technology in the junior secondary schools in Enugu state.

Research Questions

The following research questions guided this study:

1. What are the teachers' related factors that contribute to students learning difficulties in Basic Technology in junior schools in Enugu state?
2. What are the students' related factors that contribute to students learning difficulties in Basic Technology in junior schools in Enugu state?

Methodology

The design adopted for this study was survey. This research was carried out in all government owned Secondary School in Enugu state of Enugu State. The population of the study is made up of all Basic Technology teachers and Senior Secondary School Students in the nine (9) public Secondary Schools in Nsukka L.G.A of Enugu state. There are 18 Basic Technology teachers and 3681 Basic Technology students in these schools which gives a total of 3699. Source:

Post Primary School Management Board (PPSMB 2024). Five (5) schools were sampled out from the nine secondary schools. 72 students were selected from each of the sampled schools to give 360 students. This was done using simple random sampling. All the 18 Basic Technology teachers were used to give a sample size of 378. The researcher made use of structured questionnaire to collect data for the study. The questionnaire was designed in line with the modified 4-point Likert scale of strongly agree (SA), agree (A), disagree (D), strongly disagree (SD) and weighted thus (SA) has four points, (A) has three points, (D) has two points and (SD) has one point the instrument was validated by three experts, one expert from Measurement and Evaluation and two experts from Technical Education Department, all in Enugu State College of Education (Technical). Reliability of the instrument was determined using Pearson's Product Moment Correlation. The analysis yielded a correlation coefficient of 0.83. The research questions were answered using mean. However, the mean of 2.50 was used as a decision rule. An item with mean of 2.50 and above will be accepted while item with mean below 2.50 will be rejected.

Result

The results were presented in table in line with the research questions.

Table 1: Teachers and Students' responses on teacher related factors that contribute to students' learning difficulties in basic technology N =378

S/N	ITEMS	N:18 X	N360 X	N378 TOTAL X	DECISION
1	Qualification of the basic technology teacher	2.61	2.90	2.76	A
2	Lack of motivation of teachers	3.38	2.90	3.14	A
3	Teaching experience of the teacher	2.72	3.31	3.02	A
4	Difficult conditions in which the teacher work	3.2	2.82	3.01	A
5	Poor quality of basic technology teachers in terms of adequate knowledge base	3.4	2.72	3.06	A
6	Inadequate time to support learners' specific needs due to heavy workload	3.2	2.68	2.94	A
	Grand Mean	3.09	3.37	2.99	Accept

Data in table 1 revealed that a grand mean of 2.99 which are above the criterion mean score of 2.5. This implies that the items

1-6 in table one above is teacher related factors that contribute to students learning difficulties in basic technology

Table 2. Teachers and Students' responses on student related factors that contribute to students learning difficulties in basic technology

S/N	ITEMS	N:18 X	N:360 X	N:378 TOTAL X	DECISION
7	Poor study habit of the students	3.3	2.97	3.14	A
8	Student may have developed a dislike for some subject because he may fail to see its value, or may lack foundation	3.1	2.88	2.99	A
9	Attitudes of the students exercise a stimulating effect upon the rate of learning and teaching	3.3	3.01	3.16	A
10	The health of the learner will likely affect his ability to learn and his power to concentrate	3.4	2.85	3.13	A
11	Students with low intelligence often encounter serious difficulty in mastering schoolwork	3.1	2.83	2.79	A
12	If the school proceeds too rapidly and does not constantly check up on the extent to which the student is mastering what is being taught	3.3	3.08	3.19	A
13	Factors owing to lack of mastery of what has been taught	3.3	2.84	3.07	A
	Grand Mean	3.26	3.41	3.09	Accept

Data in table 2 show a grand mean of 3.09 which are above the criterion mean score of 2.5. This implies that the items 7-13 in table two above are students related factors that contribute to students learning difficulties in basic technology.

conditions in which teachers work, and inadequate time to support learner's specific needs due to heavy workload. This is in line with the findings of Eze (2016) who stated that teacher knowledge base for effective science teaching is very important in that they are to help the students completely understand the content and underlying

Discussion of Findings

The findings of the study as presented in Table 1 shows that the teacher's related factors that contribute to students learning difficulties in basic technology. The study revealed that the qualification of the basic technology teacher, lack of motivation of teachers, teaching experience, difficult conditions in which teachers work, and

inadequate time to support learner's specific needs due to heavy workload. This is in line with the findings of Eze (2016) who stated that teacher knowledge base for effective science teaching is very important in that they are to help the students completely understand the content and underlying philosophy of science. Okureme (2013) posited that: An effective science teacher should be a master of his subject, as well as grounded in methods of teaching and be able to relate the subject to the students very well and also feel proud of themselves for obtaining the correct result. The result also shows that teachers with long experience use better classroom management approaches and adequate teaching methods that encourage students

The findings of the study as presented in Table 2 shows that the student related factors that contribute to students learning difficulties in basic technology. It was found that poor study habit of the students, dislike for some subject because students may fail to

see its value. Attitudes of the students exercise a stimulating effect upon the rate of teaching and learning. The health of the learner will likely affect his ability to learn and student's willpower to concentrate. Students with low intelligence often encounter serious difficulty in acquiring skills in schoolwork and factors owing to lack of mastery of what has been taught. This concurs with the work of Nkantana (2013) that the health of the learner will likely affect his ability to learn and his power to concentrate. Students with low intelligence often encounter serious difficulty in mastering and acquiring skills in schoolwork and factors owing to lack of mastery of what has been taught.

Conclusion

Based on the findings of the study, the following conclusions can be drawn the qualification of the basic technology teacher, lack of motivation of teachers, teaching experience, Difficult conditions in which the teachers work among others are teacher related factors that contribute to students learning difficulties in basic technology. Poor study habit of the students. dislike for some

subject, Attitudes of the students the health of the learner which will likely affect his ability to Education. It was also observed that the learners and power to concentrate during class work, lack of mastery of what has been taught are student related factors that contribute to students learning difficulties in basic technology.

Recommendations

From the fore going discussion, it is quite obvious to say that if this emerging identified factors in basic technology among other are well tackled, Nigeria would have started laying concrete foundation towards becoming a developed country.

1. More qualified basic technology teachers with teaching experience should be posted to secondary schools.
2. Students should be encouraged by teachers to develop good study habits.
3. Teachers should recognize and respond to the various identified causes of students' learning difficulties. Doing this will not only reduce these difficulties, but also make teaching and learning more effective.

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