



## **Strategies for Improving Automobile Students' Technical Skills Acquisition in Science and Technical Colleges in Yobe and Gombe State**

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### **ABSTRACT**

Skills acquisition remains the major goal of vocational and technical education. The inherent problems associated with skills acquisition may not be attributed to a single factor. This study on strategies for improving Automobile students' technical skills acquisition in science and technical colleges in Yobe and Gombe is a study that identifies instructional strategies, supervisory strategies, strategies for improving state of Automobile workshop facilities and training strategies, which if adopted and maintained will improve automobile students' technical skills acquisition. A survey research design was adopted for the study, the total population of 76 respondents were used for the study representing 14 principals, 49 automobile teachers and 12 workshop attendants. A self structured questionnaire with four sections of 20 items on a four point rating scale was used as instrument for data collection. The reliability coefficient of the instrument was 0.78 determined using split half statistical method. Four research questions were designed for the study. Mean and standard deviation were used to answer the research questions, Tables were used to present the data. The major findings of the study were: varieties of teaching methods to be used within a lesson, computer animation be used in illustrating operations that cannot be seen practically, also the study revealed that workshops are to generate funds for procurement of facilities. The study further revealed that college management must emphasis on in-service, departmental or in-house seminars, conferences, part time programmes for automobile teachers among others.

**Keywords:** Strategies, Automobile, Skills acquisition, Technical Colleges

### **INTRODUCTION**

The elevation of the human condition is the primary concern of education. Through education people develop their knowledge and skills, adopt new behavior and become better citizens. In Nigeria, education is perceived as the greatest force that could be used to achieve desirable change or development of the nation economically, politically and socially. A vital aspect of Nigerian education process is technical education. This type of education has been seen as the most reliable instrument for individual and societal survival and development in this changing world. It is no gainsaying that the provision of technical education through any mechanism put in place will enable its recipient to be better, more useful and more productive citizens of the nation.

Technical education is an education which equips individual with the skills; knowledge and understanding that can make one live fully and contribute to the development of his or her society. The goals of technical education in particular according FRN in the National policy on education (2013) include among others, to contribute to national development through high level relevant manpower training, to inculcate both psychomotor and intellectual skills which will enable individuals to be self reliant and useful members of the society. The implication of these goals is that apart from making the graduate acquire skills and knowledge that will help him/her fend for him or herself and the wider society, it also aims at satisfying the manpower needs of the society.

Technical colleges in Nigeria have been training people to become craftsmen and technicians. Training qualifies them for jobs in both public and private sectors of the economy. Both sectors, according to Ndomi (2005), require well-trained and competent technicians who can operate and maintain the available technical equipment. Therefore, there is the need for technologically based skill training that ensures that students understand how their expertise fits into improving the society and fulfilling national goals. Gombe and Yobe States were not left behind in the establishment of technical colleges to provide an opportunity for productive skills and manpower development for its citizens and the nation in general. Eight technical colleges were established in Yobe State, while six technical colleges were as well established in Gombe State.

Automobile as a trade in technical colleges is designed to equip every Nigerian student that offers the trade as a subject at the technical college level with skills in motor vehicle maintenance, servicing and repair after graduation from school. Itedjere (2009), states that one of the primary aims of the National Policy on Education that was designed by the Federal Government of Nigeria in 1981 was to equip every Nigerian child with basic skills that will enhance them for the purpose of technological development and advancement in Nigeria. Eruanga (2011), described Automobile technology as education that provides the students with the knowledge and skills with adequate practical experience in the field of professional motor vehicle mechanics technology for national development.

Skills acquisition is very necessary at the present stage of Nigeria's economic and technological development. Dasmani (2011) stated that the acquisition of skills prepares students for specific occupation in industries and competences to exploit life's opportunities. Skills acquisition remains the major goal of technical education and this helps to satisfy the personal work needs of the individual and the society in general (Aliozor, 2005). To acquire skills in technical education programs such as Motor vehicle mechanics technology at technical college level, opportunities must be provided for students to practice what they learnt. Simon (2011) explained that a skill is a manual process acquired through repetitive performance of an operation.

Skill acquisition is best defined from the learner as the process of acquiring practical or technical knowledge from an individual, group or institution that can impart such knowledge (Ubong and Oguzor, 2007). Skills are more commonly used in the context of trade, occupations and vocations and are usually aimed at practical purposes. Technical Colleges, are regarded as the principal vocational institutions in Nigeria. They give full vocational training intended to prepare students for entry in to various occupation (Balash 2013). According to him, technical college train craftsmen in motor vehicle mechanics (MVM), plumbing, carpentry and joinery, cabinet making, painting and decorating, welding, electrical installation, radio and television (TV) repair, building construction and others. On completion of the course of training, it is expected that students will obtain work in industries or establish business on their own/

The major goal of Technical Colleges where Automobile Technology is offered is to prepare students for successful employment in the labor market (FRN 2013). This condition can be met through a curriculum that is relevant, comprehensive and well equipped workshop with relevant training facilities, sufficient technical teachers and appropriate delivery methods. Unfortunately, technical skills acquisition in Nigerian Colleges are battling with numerous problems and most of the problems associated with technical skills acquisition were traced to: poor teaching strategies, the teaching of technical subjects has been too theoretical, that most students now consider such subjects as those in the faculty of Arts and social sciences, there is no much emphasis on the learners technical skills acquisition, teachers in most cases use lecture method only in a programme they are supposed to apply lecture and demonstration method. Odu (2006) maintained that appropriate teaching strategies should be employed in teaching technical subjects so as to achieve the national goals as elucidated in the National Policy on Education.

### **Statement of the Problem**

Technical Education is an important ingredient for the development of manpower and economic growth of any nation and this can only be realized if the required skills are acquired at all levels of the education system. The importance of skills acquisition cannot be overemphasized in any technical and vocational education system, particularly in this present situation of economic instability. According to Simon (2011), it is generally believed that the acquisition of the requisite skill is a means of increasing the productive power of a nation, hence Nigeria as a nation should recognize the fact that

every citizen should be equipped with adequate skills to contribute effectively to the economic development of the nation.

Graduates of technical colleges are expected to have been trained and acquire functional skills that will make them useful to themselves and the society in general. However, most graduates of these colleges' especially Automobile graduates have little skills or no skills to show, this is clearly seen in the way the graduates of these institutions pass out without appropriate craftsman skills or technical skills needed for technological development. Agbaibe (2008) in support of the above assertion states that most products of technical colleges are unemployed, due to lack of appropriate technical skills from colleges. Literatures attributed poor technical skills acquisitions to instructional strategies adopted by Automobile instructors, inadequate facilities, inadequate supervision of practical, insufficient trained technical teachers, based on this fact therefore there is a need to improve on the existing strategies associated with Automobile student's technical skills acquisition in Science and Technical Colleges in Yobe and Gombe States.

### **Purpose of the Study**

The main purpose of the study was to determine strategies for improving Automobile student's technical skills acquisition in Science and Technical Colleges in Gombe State. Specifically the study intends to determine;

1. To advance Instructional strategies that will improve Automobile students' technical skills acquisition in Science and Technical Colleges.
2. To Unravel Supervisory strategies that will improve Automobile students' technical skills acquisition in Science and Technical Colleges.
3. Suggest Strategies for repositioning workshop facilities for improving Automobile students' technical skills acquisition in Science and Technical Colleges.
4. Emphasize re-training strategies for teachers in order to improve students' technical skills acquisition in Science and Technical Colleges.

### **Research Questions**

This study was guided by the following questions:

1. What are the instructional strategies for improving Automobile student's technical skills acquisition in science and technical Colleges?
2. What are the supervisory strategies for improving Automobile student's practical work activities?
3. What are the strategies for repositioning workshop facilities for improving Automobile students' technical skills acquisition in science and technical Colleges?
4. What are the re-training strategies for teachers in order to improve students' technical skills acquisition in science and technical colleges?

### **METHODOLOGY**

This study adopts descriptive survey research design. Descriptive survey research design gives a picture of a situation without manipulating any variable (Baba, 2005). The study covers all the fourteen Government Science and Technical Colleges of Yobe and Gombe States located in the North East Sub Region of Nigeria. Yobe state is located between longitude 12° 00' North and latitude 11° 30' East of Greenwich Mediterranean and Gombe state is located between longitude 10° 15' North and 11° 10' East of Greenwich Mediterranean . The population of this study will comprise of 14 Principals, 49 Automobile teachers and 13 Automobile workshops attendants (total 76) of the fourteen Science and Technical colleges in Yobe and Gombe States. In this study the entire population is used because the size is small. The instrument used in collecting data for this research work is a self-structured Questionnaire titled: Automobile Student's Skills Improvement Strategies (AUTOSIS). The instrument is face-validated by three (three) lecturers in the field of technology education, Two (2) from Faculty of Technology Education, Abubakar Tafawa Balewa University Bauchi and One from Federal College of Education (T) Potiskum. The instrument was pilot tested and the data obtained was analysed using split-half statistical method, and reliability of the full length questionnaire of 0.78 was obtained using Spearman-Brown formula. The instrument were administered and retrieved personally by the researcher within two weeks, The statistical package of social sciences (SPSS) version20 was used to analyse the data collected Mean and Standard Deviation were used to answer the research question.

**RESULTS AND DISCUSSION**

**Research Question 1:** *What are the instructional strategies for improving Automobile student's technical skills acquisition in Science and Technical Colleges in Yobe and Gombe State?*

**Table 2. Mean scores and standard deviation on instructional strategies for improving automobile students' technical skills acquisition in Science and Technical Colleges.**

S/NO	QUESTIONNAIRE ITEM	N				AV	ASD	DECISION
1	Using direct question at the beginning of every theory lesson to asses previous knowledge and lead them into new lesson.	76	4.17	4.14	4.20	<b>4.17</b>	.556	AGREED
2	Describing personal experience involving use of ideas which are to be presented to students at introduction stage of the lesson.	76	3.67	3.91	3.60	<b>3.72</b>	1.235	AGREED
3	Introducing the lesson with a picture to attract attention of the students.	76	3.83	3.73	4.20	<b>3.92</b>	.804	AGREED
4	Grouping students according to their abilities in each lesson	76	2.83	2.73	3.00	<b>2.86</b>	.522	DISAGREE
5	Using variety of teaching methods within a lesson	76	4.50	4.41	4.80	<b>4.57</b>	.499	AGREED
6	Taking students to visit the available Auto workshops within the town to examine constructions and parts that are not available in the school workshop	76	4.50	4.36	4.40	<b>4.42</b>	.529	AGREED

**KEY**

p = Mean Respond of Principals

wa = Mean Respond of Workshop Attendants

t = Mean Responds of Teachers

AV = Average Mean

ASD = Average Standard Deviation

In respond to research question 1, principals, automobile teachers, and workshop attendants agreed on 5 out of 6 items as instructional strategies for improving Automobile students' technical skills acquisitions in technical colleges, They disagree with item 4, which is grouping students according to their abilities and only item 3 have an average mean value of 2.86. Items agreed upon include among others, using direct question at the beginning of every theory class to asses previous knowledge and link it to new lesson; Describing personal experience involving use of ideas which are to be presented to students at introduction stage of the lesson; using variety of teaching methods within a lesson;

**Research Question 2:** *What are the supervisory strategies for improving Automobile student's practical project activities in Science and Technical colleges?*

**Table 2: Mean scores and standard deviations on supervisory strategies for improving automobile students' practical work in science and technical colleges.**

S/NO	QUESTIONNAIRE IREMS	N			wa	AV	ASD	DECISION
1	Taking attendance by workshop technologist at the beginning of every practical session.	76	4.17	4.41	4.40	<b>4.32</b>	.503	AGREED
2	The technologist should Guide the students in selection of tools and material for every practical session.	76	4.33	4.37	4.20	<b>4.29</b>	.485	AGREED
3	The teacher should encourage students to be open minded and creative about the applications of techniques to their challenges during practical session.	76	4.33	4.14	4.20	<b>4.22</b>	.485	AGREED
4	The teacher and technologist must make sure each individual is provided with needed materials at the beginning of the practical.	76	4.67	4.36	4.80	<b>4.61</b>	.485	AGREED
5	The technologist should make sure each student undertaking practical activities is systematically evaluated during the practical and at the end.	76	4.17	4.45	4.20	<b>4.27</b>	.445	AGREED
6	The teacher and the technologist should Interact with students and ask for their opinions where necessary during the practical activities.	76	4.17	4.41	4.20	<b>4.26</b>	.567	AGREED

**KEY**

p = Mean Respond of Principals

wa = Mean Respond of Workshop Attendants

t = Mean Responds of Teachers

AV = Average Mean

ASD = Average Standard Deviation

In the table 2, Above, the responds analysis shows that the average mean scores obtained ranges from 4.26 to 4.61, and the average standard deviations ranges from .445 to .567, meaning the principals, Automobile teachers and workshop attendants agreed with all the whole items as supervisory strategies for improving automobile students' technical skills acquisition in Science and Technical colleges. These are in agreement with the view of Ajayi (2005) who defined supervision as a process of operating in a close range by actually overseeing, controlling dealing with situation as they arise, on the other hand. Igwe (2001) pointed out, to supervise means to direct, oversee, guide or make sure that expected standards are met. Also Bukar (2000) in identifying purposes of supervision he made mention that supervision allows the supervisor to help improve the effectiveness of students through advice and assistance so that the students can contribute maximally towards the attainment of objectives.

**Research Question 3:** *What are the strategies to be employed to improve the state of Automobile facilities in Science and Technical colleges?*

**Table 3: Mean scores and standard deviation on strategies for improving the state of automobile workshop facilities in Science and Technical Colleges**

S/NO	QUESTIONNAIRE ITEMS	N			wa	AV	ASD	DECISION
1	The school management should organize an annual funds rising, where nongovernmental organizations like; banks, industries in the state etc will be invited and be informed on the need and the state of workshop facilities in the college.	33	3.83	4.27	3.60	<b>3.90</b>	.991	AGREED
2	Final year students should be allocated a project that will add to the needed facilities in the college.	33	4.50	4.05	4.40	<b>4.31</b>	.627	AGREED
3	The school management should create a committee that will set modalities/strategies for maintenance and decide penalties for damaging facilities in the college.	33	4.83	4.41	4.20	<b>4.31</b>	.481	AGREED
4	The principals of the technical colleges in the state should create an avenue where all of them should meet and discuss on the issue of workshops facilities annually and brief the state government on the need and the state of workshop facilities in the colleges.	33	4.50	4.27	4.40	<b>4.39</b>	.517	AGREED

**KEY**

p = Mean Respond of Principals

wa = Mean Respond of Workshop Attendants

t = Mean Responds of Teachers

AV = Average Mean

ASD = Average Standard Deviation

The findings on Table 3 indicated that principals, workshop attendants and automobile teachers agreed with all the strategies listed, the average mean scores of these items accepted ranges from 3.90 to 4.39 with item 4 having the highest average mean of 4.39. The strategies for improving the state of automobile workshop facilities include, The school management should organize an annual funds raising seminar on workshop facilities, where nongovernmental organizations like; banks, industries in the state etc will be invited and be informed on the need and the state of workshop facilities in the college; Final year students should be allocated a project that will add to the needed facilities in the college; The management of colleges should create a committee that set modalities/strategies for maintenance and decide penalties for damaging facilities in the college; The principals of the technical colleges in the state should create an avenue where all of them should meet and discuss on the issue of workshops facilities and brief the state government on the need and the state of facilities in the colleges;. These tally with the opinion of Chado (2004) who observed that many of colleges offering vocational and technology education programme are experiencing gross insufficiency of facilities for teaching and learning technical subject and non availability of this facilities has in many ways restrain technological education.

**Research Question 4:** *What are the Training strategies to be employed in improving the quality of Automobile Teachers in Science and Technical colleges of Gombe State?*

**Table 4: Mean scores and standard deviations for training strategies for improving the quality of automobile teachers in science and technical colleges**

S/NO	QUESTIONNAIRE ITEMS	N		t			ASD	DECISION
1	Teachers should be encouraged to proceed on in service training for update on emergent issue and development in technical courses.	33	4.67	4.36	4.40	<b>4.47</b>	.518	AGREED
2	Management of colleges should make sure Automobile teachers belong to some professional association.	33	3.83	4.18	4.00	<b>4.00</b>	.267	AGREED
3	The management of the college should organize annual departmental or in-house seminars, conferences and workshops where senior colleagues help the others to improve their jobs.	33	4.50	4.45	4.40	<b>4.45</b>	.535	AGREED
4	The principals of the colleges should provide and mandate the implementation of ICT in teaching-learning process.	33	3.50	4.00	3.80	<b>3.76</b>	.603	AGREED

The findings on this cluster of strategies listed on the table 4 reveal that the principals, automobile teachers and workshop attendants agreed on all the items. The average mean scores of the items ranges from 3.76 to 4.47. The training strategies for improving the quality of automobile instructors includes, Teachers should be encouraged to proceed on in service training for update on emergent issue and development in technical courses; management of colleges should make sure automobile instructors belongs to some professional association; the management of the colleges should organize annual departmental or in-house seminars, conferences and workshops where the senior colleagues help the others to improve on their jobs; the principals of the college should provide mandate the implementation of ict in teaching and learning process; school management should sponsor automobile teachers to attend conference seminars and workshop;

**The major findings are summarized as follows;**

Varieties of teaching methods such as questioning, demonstration, assignment, field trip, computer animation are to be emphasized in teaching automobile courses.

That teachers and technologist are to direct, oversee, guide, encourage team work, interact freely, evaluate and give room for improvisation while students are on practical activities

That automobile workshop and college management are to generate funds for procurement of workshop facilities and set modalities for maintenance.

That colleges are to give more emphasis on in-service, departmental or in- house seminars, conferences, part time programmes for automobile teachers.

**Summary**

The findings of the study have far reaching implications for effective teaching of automobile technology and supervisory strategies for improving automobile students’ practical work activities in science and technical colleges. The study has identified many strategies that are imperative in improving automobile students’ technical skills acquisition in science and technical colleges’ level which automobile instructors and technologist agreed upon. Therefore technologist and instructors should take cognizance of these important strategies and utilize them for the benefit of automobile students at technical colleges’ level.

The implications of findings of the study relative to instructional and supervisory strategies are that technologist and instructors must adopt and maintain them in order to improve student’s rate of

learning especially with regards to skills acquisition. The curriculum planners in vocational and technical education may design a comprehensive curriculum, review or modify the existing curriculum for technical colleges programme based on the important strategies identified in this study. The findings of the study have provided information for principals and instructors on how to improve the state of facilities and also a data bank for training, retraining of automobile instructors.

### **CONCLUSION**

It is generally believed that the acquisition of requisite skills is a means of increasing the productive power of a nation, hence Nigeria as a nation should recognize the fact that every citizen should be equipped with adequate skills to contribute effectively to the economic development of the nation. Skills acquisition remains the major goal of Vocational Technical Education; therefore it is necessary for principals, technologist and automobile teachers in technical colleges to make efforts in improving automobile students' technical skills acquisition. This implies that the attainment of objectives of Automobile Technology depends to a large extent on the improvement of strategies of teaching automobile, strategies of supervising students' practical work, improving the state of workshop facilities and the training strategies for improving the quality of automobile instructors. Fortunately the results of the study provides substantial evidence that the majority of strategies stated are generally accepted as strategies that will improved automobile students' technical skills acquisition. Therefore there is need to adopt and maintain these strategies.

### **RECOMMENDATIONS**

Based on the findings of the study and their implications, the following recommendations were made.

1. Instructors should use direct questions at the beginning of every theory class to access previous knowledge and link it to new lesson.
2. Varieties of teaching methods are to be applied within a lesson.
3. Demonstration method is to be adopted to show how a procedure or experiment is to be carried out.
4. Computer animation should be used in illustrating operations and relationships between parts that cannot be seen practically.
5. Going over key points with students by means of questions and answers at the end of every lesson.
6. Taking attendance by workshop technologist at the beginning of every practical session

### **REFERENCES**

- Agbabe J. (2008). Technical and Vocational Education in Nigeria. *International Journal of Technology*. 21.123-125.
- Ajayi L. J. (2005). Perception difference between teachers and university supervisors on the expectation and performance for the field work programmed education 12 (4): 259-274, print source plus inc. Appleton
- Aliozor, R. (2005). Nigeria Technical and vocational education in the near future, Keynote address delivered at the National seminar on technical and vocational Education in Nigeria, Nov 12-Dec 2005.
- Baba, N. M. (2005). *Introduction to research process in Nigerian Education System*. Lagos NERDC Press Yaba: 40-45
- Balash, F. (2013). Technical Vocational Education: As a Veritable Tool for Eradicating Youth unemployment. *International organization of scientific research journal of humanities and social science*: 8 (2) 10.
- Bukar, B. (2005). Research supervision and student research project in technical Education: *Journal of Natural Science and Technology Forum* 1, (3): 44-50.
- Chado, M. I. D (2004). Strategies for effective teaching and learning of technology in Nigeria: *Minna Journal of Education Studies (MIJES)* 2 (2) 215-227
- Dasmani, A. (2011). Challenges Facing Technical Institute Graduates in practical Skills Acquisition in the upper east region of Ghana. *Asian-pacific journal of cooperative Education* 12 (2) 67-77
- Erunga, I. B. (2011). The nature and purpose of supervision for quality assurance in automechanics technology: *Journal of Nigeria Association of Teachers of Technology (NATT)* 18 (1);178-182



- Federal Republic of Nigeria (2013). National Policy on Education. 6<sup>th</sup> Edition. Yaba Lagos: NERDC Press.
- Igwe, S. O. (2011). *Supervision, evaluation and quality control in education in Nigeria..* Benin City: Ambik press ltd.
- Itadjere, J. D. (2009). Skill acquisition in Nigerian secondary school. Relevance to Sustainable national development. *Knowledge review 15(2), 51-57.*
- Ndomi, B. M. (2005). Revisiting the learning experiment of Technical College for machining curriculum for empowerment of recipient in Nigeria: *Journal of Nigeria Association of Teachers of Technology 4 (1): (60-69).*
- Odu, K. O. (2006). Improving the quality of technology education in Nigerian Secondary school; *Journal of Nigeria Association of Teachers of technology (JONATT) 5 (1) 88-94.*
- Simon, S. (2010). Background Paper for Nigeria: Skills Development in the Workplace in Nigeria. Technical workshop programme on skills training in workplace : Oversea vocational training association; Chiba-Japan 1-5 February 2010
- Ubong, S. J. and Ogunzor, T. O. (2007). The impact of technology education for National Building : Nigeria Association of teachers of technology, Journal vol 8, p108.