

# **Hindrances to Skill Acquisition in Technical College Motor Vehicle Mechanics Work Program in Niger State, Nigeria.**

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## **Abstract**

This study surveyed the hindrances to skill acquisition in technical college Motor Vehicle Mechanics Work (MVMW) program in Niger State, Nigeria. Data were collected using a validated 21 item 5-point rating scale questionnaire (with a Cronbach Alpha reliability of 0.89) on a sample of 42 MVMW teachers and 355 MVMW students from all seven technical colleges situated in the state. Mean and standard deviation were used to answer the research questions while z-test statistics was used to test the null hypotheses at 0.05 level of significance. The hindrances to skill acquisition were broken into teacher related and student related factors. The study revealed among others that: the MVMW teachers lack adequate training facilities to teach required practical skills while the MVMW students are faced with acquiring obsolete skills that cannot enhance industrial development. The study recommends among others, the National Board for Technical Education and all stakeholders provide adequate practical skill acquisition facilities and periodically organize practical training in the work skills required by automobile industry to enhance industrial development in Nigeria.

*Keywords:* Skill acquisition, Skills, Technical College, Motor Vehicle Mechanics Work.

## **Introduction**

In Nigeria, technical college is one of the principal Technical and Vocational institution saddled with the responsibility for training craftsmen at the craft and advanced craft levels. In describing the goals of technical colleges, the Federal Republic of Nigeria (FRN) in her National Policy on Education (FRN, 2013) stated that, trainees completing technical college programmes shall have three options: secure employment either at the end of the whole programme or after completing one or more modules of employable skills; set up their own business and become self-employed and be able to employ others; pursue further education in advance craft/technical programme and in post-secondary (tertiary) technical institution such as Science and Technical colleges, polytechnics, college of technology, colleges of education, monotechnic and universities.

The technical colleges prepare students for the National Technical Certificate (NTC) and Advanced National Technical Certificate (ANTC) examinations leading to the production of craftsmen and master craftsmen. Training in various vocations or trade areas at technical colleges is carried out in Technical College (TC) one, two and three (TC I, II and III) and runs for a period of three years for the award of NTC and extra additional years for the award of ANTC depending on the trainee entry period and capability (NBTE, 2017). Technical colleges among other courses provide full training in technical trade areas as plumbing, carpentry and joinery, building, metal work and automobile mechanics, among others. The automobile mechanics programme is a core mechanical trade which has a major component as Motor Vehicle Mechanics Work.

Motor Vehicle Mechanics Work (MVMW) is one of the mechanical trade subjects offered at technical colleges in Nigeria. According to the National Board for Technical Education (NBTE) (2017), MVMW program is designed to provide craftsmen and master craftsmen with the competency to carry out preventive maintenance, general repair, and overhauling of various automobile units and components. These MVMW craftsmen and master craftsmen in the view of Nyapson (2015), should among others be able to diagnose problems, repair and service mechanical, electrical and electronic systems and components of automobile vehicles such as cars, buses and trucks. The philosophy of MVMW program as stated by NBTE (2017) is to produce competent automobile craftsmen for Nigeria's technological and industrial development and to conduct examinations leading to the award of the National Technical Certificate (NTC) and Advanced National Technical Certificate (ANTC) for automobile craftsmen and master craftsmen respectively. The NBTE (2017) stated that graduates of technical college automobile program may also wish to take the opportunity for further education.

The MVMW program is centered on skills acquisition among trainees during the training in school and during the industrial attachment period in automobile services, repairs and maintenance industries and related maintenance firms where industrial training is carried out to acquire skills. Skills denote expertise or ability developed in the course of training and experience demonstrated by an individual's ability to expertly use manual dexterity in a vocation. In the Motor Vehicle Mechanics trade, it includes not only trade and craft skills acquired through apprenticeship, but also includes technical knowledge, manual skills, high thinking skills and collaborative work skills needed to perform effectively in the automobile world of work or workplace. It is worthy to note that achieving the laudable objectives of MVMW program in technical college demand effective skill acquisition.

The Department for International Development (DFID, 2017) defined skill acquisition as the process or activity that is focused on acquiring the vocational and technical competences or dexterity needed for self-employment, job creation and self-reliance. Kenneth and Robert (2013) maintained that skill acquisition denotes activities geared towards acquiring practical competencies, know-how and attitudes necessary to perform in a trade or occupation in the labor market. To possess a skill is to demonstrate the right habit of acting, manipulating, thinking or behaving in a specific activity which has become so natural to the individual through repetitive practice.

Skill acquisition encompasses training and retraining activities in the industries and their economic effect on the welfare of a nation. If carried out in a sustainable manner, skill acquisition has the potential to help achieve a variety of objectives such as employment, poverty eradication, gender equality, labor

standards, and greater access to education and healthcare. The more developed a country's skill acquisition program capacity, the greater the potential for technological development and economic growth. Despite Nigeria government's huge investment effort in technical colleges and the MVMW program, numerous issues are standing as hindrances to skill acquisition in the MVMW program which have hampered the expected practical skills and competencies possessed by technical college MVMW students in Nigeria. This study therefore investigates the factors that serve as hindrances to skill acquisition in technical college MVMW program in Niger State, Nigeria.

### **Statement of the Research Problem**

The Nigeria government skill acquisition effort through establishment of technical colleges and the running of MVMW program is supposed to enhance effective acquisition of technical skills in automobile diagnostics, services and repairs. This effort is expected to empower graduates of MVMW with the required work skills for self-reliance and employment in various occupations in the industries to enhance industrial development in Nigeria. Despite several government efforts, many industries complained that over 65 percent of Nigeria MVMW graduates lack the required work skills for employment thereby hindering their access to contribute meaningfully to industrial development (Ngozi, 2014). It appears as if several MVMW graduates are still unemployed because they find it difficult to practice their trades upon graduation due to poor skills acquired during training in school. A clear indicator to support the existence of skill acquisition problems is the alarming rate of youth unemployment suffered by technical college graduates.

Odigiri and Ogwo (2013) revealed that the technical skills acquisition in Nigeria's technical colleges is bedeviled with numerous hindrances bothering on the MVMW teachers and trainees. The hindrances faced by technical college MVMW program in attaining effective skill acquisition in Nigeria could be the possible reason why most Nigeria automobile industries depend more on expatriate artisans, craftsmen and technicians who are highly paid and valued than their Nigeria counterpart. It is therefore imperative to carry out a survey of the hindrances to skill acquisition in technical college MVMW program in Niger State, Nigeria.

### **Purpose of the Study and Research Questions**

The purpose of the study was to survey the hindrances to skill acquisition in technical college MVMW program in Niger State, Nigeria. The specific objectives of the study identified:

1. The teacher related factors that hinder skill acquisition in technical college MVMW program.
2. The student related factors that hinder skill acquisition in technical college MVMW program.

The following research questions were raised to guide the study:

1. What teacher related factors hinder skill acquisition in technical college MVMW program?
2. What student related factors hinder skill acquisition in technical college MVMW program?

## Research Hypotheses

The following null hypotheses were tested at 0.05 level of significance to guide in the conduct of the study.

**H<sub>01</sub>**: There is no significant difference in the mean responses of MVMW teacher and TC III MVMW students on the teacher related factors that hinder skill acquisition in technical college MVMW program.

**H<sub>02</sub>**: There is no significant difference in the mean responses of MVMW teacher and TC III MVMW students on the student related hindrances that hinder skill acquisition in technical college Motor Vehicle Mechanics Work program.

## Methodology

The study adopted descriptive survey research design in which a 21-item questionnaire, structured on a five-point scale was used to collect data. The target population of the study comprised of all MVMW teachers and Year III technical college students in all the technical colleges situated in Niger State offering MVMW as a course. Year III technical college students were considered suitable for this study because they have undergone students industrial training at the end of Year II. A total of 397 respondents consisting of 42 MVMW teachers and 355 MVMW students were used for the study. Respondents rated the questions Strongly Agree (5), Agree (4), Disagree (3), Strongly Disagree (2) and Undecided (1). The questionnaire was validated by three Lecturers from the Department of Industrial and Technology Education at Federal University of Technology, Minna. The reliability of the instrument pilot tested was found to be 0.89 using Cronbach Alpha reliability statistics. The research questions were answered using mean and standard deviation while z- test statistics was used to test the null hypotheses by item analysis at the 0.05 level of significance. The decision point or benchmark for agreeing or disagreeing to a item was pegged at 3.50 based on the researchers discretion. The cut-off point was set at 3.50 because the five-point scale used was not the conventional Likert scale.

The items with mean score of 3.50 and above were regarded as agreed while items with mean score below 3.50 were regarded as Disagreed. The items with 3.50 and above were regarded as Agreed because 3.50 is the benchmark set by the researchers for agreeing to an item since 5 points rating scale were used. Hypotheses were accepted when z- calculated (z-cal) value were less than the z- table (z-critical) value of  $\pm 1.96$  while hypotheses were rejected when z- calculated were more than z- table value of  $\pm 1.96$  based on a degree of freedom (df) of 395 ( $N_1 + N_2 - 2$ ). The z-test statistics was considered suitable because it is more appropriate when the sample size (n) is greater than 30 but maintains the same parametric assumptions, table usage and other conditions as in the application of t-test statistics (Uzoagulu, 2011).

## Results

Research Question 1 and Hypothesis 1: Table 1 shows that the respondents disagreed with item 10 as teachers related factors to skill acquisition but agreed with the remaining items presented as teachers related factors to skill acquisition in technical college MVMW program based on the decision that the mean rating of item 10 is below 3.50 while that of the remaining items are above the benchmark of 3.50. The item analysis of the hypothesis from Table 1 further reveals that all the hypothesis on the items were accepted indicating that there is no significant difference between mean responses of the respondents. Hence, the null hypothesis is upheld. The 11 items had their standard deviation less than 1.96 showing that the respondents were not too far from the mean and were close to one another in their responses.

Table 1: Mean, Standard Deviation and z-test analysis of respondents on the teacher related factors that hinder skill acquisition in technical college Motor Vehicle Mechanics Work program

S/N	ITEM STATEMENT	$X_1$	$SD_1$	$X_2$	$SD_2$	$X_A$	z-cal	Rem
1	Inadequate practical training given to MVMW teachers affects the practical training of trainees.	3.51	1.2	3.53	1.23	3.52	0.67	A & AC
2	Lack of industrial attachment for up-grading MVMW teachers' skills affects teaching of practical skills.	3.75	0.55	3.26	0.74	3.51	0.81	A & AC
3	Poor remuneration & lack of motivation discourage MVMW teachers from workshop practice.	3.78	0.65	3.21	0.85	3.50	0.74	A & AC
4	Inappropriate teaching methods affect practical skill acquisition.	3.40	1.23	3.83	1.11	3.61	0.75	A & AC
5	Inability to control large class size during practical skill training.	3.10	0.12	3.92	0.54	3.51	0.54	A & AC
6	MVMW teachers find it difficult to teach skills in the absence of adequate modern training facilities.	3.45	1.43	3.65	0.75	3.55	1.43	A & AC
7	Too much emphasis on theoretical aspect of MVMW against practice during instructional delivery.	4.14	0.36	3.91	0.43	4.03	1.34	A & AC
8	Poor attitude of MVMW teachers towards improvisation of training equipment.	4.32	1.21	3.56	1.32	3.94	0.38	A & AC
9	Poor professional, personal & public image accorded to MVMW teachers in the society.	3.61	0.46	3.49	1.12	3.55	0.57	A & AC
10	Absence of in-service program for continual advancement of MVMW teachers' education.	3.21	0.78	3.11	0.89	3.16	1.57	D & AC

11	Erratic electric power supply to power training tools & machines.	3.14	0.36	2.91	0.43	3.03	1.34	A & AC
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**Key:** Rem=Remark; A=Agreed; D=Disagreed; AC=Accepted;  $\bar{x}_1$  =Mean of MVMW teachers;  $\bar{x}_2$  = Mean of MVMW students;  $\bar{x}_A$  =Average mean;SD<sub>1</sub>=Standard deviation of MVMW teachers; SD<sub>2</sub>= Standard deviation of MVMW students; z-cal =z-test calculated, z- table (z-critical) value =  $\pm 1.96$ .

Research Question 2 and Hypothesis 2: Table 2 reveals that the respondents agreed with all the items presented as students related factors to skill acquisition in technical college MVMW program based on the decision that the mean rating of all the items are above the benchmark of 3.50. The item analysis of the hypothesis from Table 2 further reveals that all the hypothesis on the items were accepted indicating that there is no significant difference between mean responses of the respondents. Hence, the null hypothesis is accepted or upheld. The 10 items had their standard deviation less than 1.96 showing that the respondents were not too far from the mean and were close to one another in their responses.

Table 2: Mean, Standard Deviation and z-test analysis of respondents on the student related factors that hinder skill acquisition in technical college Motor Vehicle Mechanics Work program.

S/N	ITEM STATEMENT	$X_1$	SD <sub>1</sub>	$X_2$	SD <sub>2</sub>	$X_A$	z-cal	Rem
1	Difficulty in securing industrial attachment in appropriate industry.	4.09	0.36	4.10	0.70	4.10	1.21	A & AC
2	Negligence of industries towards accepting students for industrial attachment.	3.70	1.31	3.33	0.65	3.52	1.30	A & AC
3	High priority accorded to general education by the society over MVMW program demoralizes trainees.	3.30	0.83	3.81	1.27	3.56	0.60	A & AC
4	Haphazard sequence of practical training.	4.28	0.32	4.05	0.81	4.17	0.80	A & AC
5	Non-payment of stipend to students in training.	4.34	1.20	3.47	0.72	3.90	0.69	A & AC
6	Difficulty in purchasing information & communication technology devices needed for learning skills.	3.50	1.39	3.06	0.63	3.78	0.57	A & AC
7	Inconsistencies in the financial settlement scheme for MVMW graduates willing to practice their trades.	3.29	1.29	3.77	0.74	3.53	0.71	A & AC
8	The societal view that MVMW program is for unintelligence & under achievers reduces students' interest.	4.10	0.75	3.71	0.11	3.91	1.48	A & AC
9	The availability of obsolete training facilities leads to acquisition of outdated skills that are irrelevant to industries.	4.20	1.30	4.01	0.64	4.11	1.42	A & AC
10	Students' laziness & lack of focus on skill acquisition on a particular trade.	4.41	0.45	4.36	0.81	4.39	0.68	A & AC

## Summary of Results

Based on the data collected and analyzed, the following findings emerged:

1. The teacher related factors that hinder skill acquisition in technical college MVMW program includes inadequate practical training given to teachers, lack of industrial attachment for upgrading MVMW teachers' skills, poor teacher remuneration and lack of motivation towards workshop practice, inappropriate teaching methods, large class size, inadequate modern training facilities, poor attitude of MVMW teachers towards improvisation, erratic electric power supply, among others. The respondents disagreed to the absence of in-service program for continual advancement of MVMW teachers' education.
2. The student related factors that hinder skill acquisition in technical college MVMW program includes difficulty in securing industrial attachment in appropriate industry, poor societal attitude towards MVMW program, haphazard sequence of practical lesson, difficulty in purchasing information & communication technology (ICT) devices needed for learning skills, non-payment of stipend to students in training, inconsistencies in the financial settlement scheme for MVMW graduate willing to practice their trade, laziness & lack of focus on skill acquisition on a particular trade, among others.
3. There is no significant difference between mean responses of the respondents on the teacher related factors that act as hindrance to skill acquisition in technical college MVMW program.
4. There is no significant difference between mean responses of the respondents on the student related factors that act as hindrance to skill acquisition in technical college MVMW program.

## Discussion of Findings

The findings on the teacher related factors that hinder skill acquisition in technical college MVMW program revealed that over 90% of the listed items were found to be among the teacher related factors to skill acquisition in technical college MVMW program. The study also revealed that absence of in-service program in technical colleges is not a factor related to skill acquisition, as respondents' responses imply that there is in-service program for continual advancement of MVMW teachers. The findings of the study is similar to the findings of Ogwo (2004) who carried out a study on skills development and found out that, most technical college classrooms and vocational training centers in Nigeria are overcrowded with trainees who find it difficult to understand practical sequence due to the pressure involve in learning practical skills.

The issue of large class size as a factor that hinder skill acquisition in technical college MVMW program was buttressed by Nyapson (2015), who lamented on the serious hindrance faced by several technical college teachers in teaching overcrowded classes. It is in recognition of the hindrance and negative effect of overcrowding or large class size in technical college programs that the Federal Republic of Nigeria in her National Policy on Education (FRN, 2013) stated that, for effective participation of students in practical work, the teacher students' ratio shall be kept at 1:20. This ratio is very difficult to adhere to in Nigeria technical colleges.

Similarly, Aghenta (2009) in a study on methods of teaching vocational subjects in Nigerian schools, found out that the overcrowding results from large class size in TVET institutions and training centers and is the major reason while instructors use inappropriate teaching methods which result in inculcating in the trainees, trial and error method of solving practical problems. Therefore, the technical graduates upon graduation finds it difficult to gain employment in the industries because the trial and error method is no longer needed by the industries due technological devices currently in use to enhance problem solving inform of fault diagnosis before repairs in modern motor vehicles.

Though there is in-service program for continual advancement of technical college MVMW teachers, the factors resulting from inadequate practical training given to them and lack of industrial attachment for upgrading MVMW teachers and master trainers' practical skills still need to be addressed. In line with this, Odigiri and Ogwo (2013) in a study on technical skills needs of technical college teachers found out that, no educational program can rise above the quality of its teachers and no teacher can teach a practical skill which he or she does not possess. Therefore, there is need to regularly update the teacher training curriculum every three years and emphasize more practical content to cope with new innovations in motor vehicle technology.

The findings on the student related factors that hinder skill acquisition in technical college MVMW program revealed that 100 % of the items listed were found to be among the student related factors to skill acquisition in technical college MVMW program. Corroborating the haphazard sequence of practical skills training, Igwe et al. (2017) in a study on Nigeria technical colleges found out that, the training provided by the technical colleges falls below modern training procedures. Furthermore, they stated that the training is devoid of formal orientation and lacks strict adherence to curriculum content for practical lessons. What is taught to trainees depends on the job or maintenance problem at hand. The mode of training and instruction is mostly by observation, practice, trial and error method. Therefore, trainees upon graduation suffer unemployment, underemployment and find it difficult to adapt in modern industrial work environment where standardized training procedures are adopted. The difficulty of students in securing industrial attachment in appropriate industry as well as the negligence of industries towards accepting trainees for industrial attachment is currently a serious challenge that affects serves as factor which hinders to skill acquisition in Nigeria technical college programs.

To buttress the factors resulting from difficulty of students in securing industrial attachment in appropriate industry, Olusegun (2010) conducted a study on effectiveness of Student Industrial Work-Experience Scheme (SIWES) and found out that, some students find it difficult to secure appropriate industry for industrial attachment because most students are searching for industries that pay students on training. Some students that are accepted for attachment in an appropriate industry, even during training they disturb the industrial management to pay them salary while on attachment. Similarly, Ogbuanya et al. (2010), stated that the desire by students to get paid while on industrial attachment or training has made many industries to develop lukewarm attitude and negligence towards accepting them for industrial attachment, thereby hindering avenue for skills acquisition needed for industrial development in Nigeria. The study found no significant difference in the mean ratings of the responses of the respondents on the hindrances to skill acquisition in technical college MVMW program in Niger State, Nigeria. Hence, the opinions of the respondents did not differ in majority of the items identified. Therefore, the null hypotheses for the study were upheld (accepted).



## Conclusion and Recommendations

Based on the findings of the study, it was concluded that the factors that serves as hindrances to skill acquisition in technical college MVMW program in Niger State are numerous and bothers more on teacher related hindrances as well as students related hindrances. If the Nigeria technical college MVMW program is to gain relevance, achieve its objectives and produce technical manpower to promote industrial development, self-reliance and employment generation, then there is need for Nigeria government at various levels, industries as well as other stakeholders to intensify effort to find solution to the factors that serves as hindrances to skills acquisition in technical college MVMW program in Niger State, Nigeria.

Based on the findings of the study, the following recommendations were made:

1. The National Board for Technical Education should organize training workshop to update MVMW teachers' practical skills and pedagogical competence needed to effectively teach practical skills.
2. The head of the Science and Technical School Board should give orientation to the MVMW students on the relevance of MVMW program to industrial development, self-reliance, employment generation and wealth creation.
3. Technical colleges should make efforts to generate fund internally through lunching and appeal fund cards from time to time to enable them buy modern training facilities and consumables for practicing skills acquisition.
4. Supervisors from the Science and Technical School Board should give proper supervision, monitoring and standardization of technical college program implementation as well as restructuring MVMW program content to reflect current needs of the automobile industries.

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