

## **GENERIC AND TECHNICAL SKILLS NEEDED BY MOTOR VEHICLE MECHANICS IN MAINTENANCE AND REPAIRS OF MODERN AUTOMOTIVES IN NIGER STATE, NIGERIA**

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### **Abstract**

The study investigated the generic and technical skills needed by motor vehicle mechanic in maintenance and repairs of modern automotives in Niger state, Nigeria. Two research questions and two null hypotheses guided the study. A descriptive survey research design was adopted for the study. The study was conducted in all the registered automobile mechanic workshops in three senatorial zones of Niger State. A proportionate stratified random sampling techniques was used to draw 10% of the total population for the study. Therefore, sampled population for the study was 720 respondents comprising of 210 highly experienced, 480 moderately experienced Motor vehicle mechanics, 17 Motor vehicle mechanic maintenance teachers and 13 automobile lecturers respectively but 715 respondents returned the questionnaire. A structured questionnaire title Motor Vehicle Mechanic, Generic and Technical Skills Maintenance and Repairs Questionnaires (MVMGTSMRQ) developed by researchers and validated by three experts was used for the data collection for the study. The reliability coefficient of the instrument was determined to be 0.83 using Cronbach Alpha Statistics. Mean and standard deviation were used to answer the questions while z-test statistics was used to test the two null hypotheses formulated for the study at 0.05 level of significance. The findings among others revealed that generic skills such as perfect commitment to duties, habit of punctuality at work, moral integrity on the job, readiness skills at work, loyalty to duty mention but a few are needed by the Motor vehicle mechanics with grand mean of 3.33 with standard deviation of 0.70. The finding on the technical skill needed revealed that ability to detect worn disc plate, Competence in recognizing a defective Anti-lock Braking System (ABS) warning light, skills in identify different types of clutch, Ability to service different types of clutch among others are technical skills needed by the by the Motor vehicle mechanics with grand mean of 3.21 and standard Deviation 0.72. It was recommended amongst other that the Organizing retraining courses to update and equip automobile mechanics with the requisite generic skills for effective maintenance of modern vehicles. Government should establish a modern motor vehicle mechanic workshop that would train competent craftsmen on mechanical technical skills required in maintaining and repairing of automobile.

**Keywords:** Motor Vehicle, Motor Vehicle Mechanics, Skills, Generic Skills, Technical Skills and Maintenance.

### **Introduction**

Motor vehicles are motorized vehicles commonly wheeled, that does not operate on rails and is used for transportation of people and cargo. Ogbuanya and Usman (2020) explained motor vehicle as a prime mover of people and goods on land, which contributes to daily economic and social system. Motor vehicles in the context of this study comprises of many complex systems with a sophisticated group of technological assemble. These assemblies are engines or power plants, electrical system, running gear, or basic structures, driving system, basic control system, and accessories. However, when the vehicle developed one fault or the other, it is being taken care of in an automobile workshop by a competent motor vehicle mechanics.

Motor vehicle mechanics are skills tradesperson that repair and maintain different type of vehicles. Baba, Jacob and Issifu (2018) explained motor vehicle mechanics as personnel that diagnoses the problem of motor vehicle accurately and quickly which can save owners time and potentially a substantial amount of money. Motor Vehicle Mechanic (MVM) in the content of this study are those personnel who maintain and repair a wide range of vehicle including cars, buses and trucks among others. Their responsibilities include inspecting, assessing and repairing the engine components of a motorized vehicle. In order to meet up with these tasks the personnel or mechanics must be skillful.

Skills are the expertise needed in order to carry out a task. Mautin, Ogunleye, Maryam and Audu (2019) postulated that skill is the ability and capability that is acquired through deliberate, systematic and sustained effort to smoothly and adaptively carryout complex activities or job functions involving ideas (cognitive skills) or people (interpersonal skills). Skills in the context of the study are those skills needed by motor vehicle mechanics in order to diagnoses the vehicles. These skills can be regarded as soft and hard skill. Soft skills are skills and abilities that are much harder to measure and a bit fuzzier to define. These are interpersonal skills that help people get along with each other to collaborate. Examples are creativity skills, emotional skills, problem solving skills to mention but a few. The soft skills can be interchangeably used as generic skills.

Generic skills are sets of interpersonal skills which are cluster to occupations and also required for effective productivity. Oluyomi (2015) postulated that generic skills are high-order, transferable skills which are applicable and common to a range of contexts across all specific fields which includes communication, problem solving and the abilities to use information technology. Generic in the content of this study are those interpersonal skills needed by motor vehicle mechanics which includes meta-cognition and meta-cognitive skills. The common element of generic skills in motor vehicle mechanics are basic/fundamental skills (for instance, literacy using number, using technology in assemble and disassemble of engines), people related skills (communication, interpersonal and teamwork), conceptual Thinking skills (collecting and organizing information, problem solving, planning, organizing, thinking innovatively, thinking creatively), personal skills and attributes (Responsibility, resourcefulness, flexibility and time management), skills related to the business world (Innovation, entrepreneur skills), and skills related to the community: civic or citizenship knowledge and skills (Oluyomi, 2015). Generic skills are also known by several other names including key skills, core skills, essential skills, key competencies, necessary skills, transferable skills, employability skills and life skills which are categorized under soft skills. On the other hands for effectiveness function of motor vehicle mechanics there is need for technical skills.

Technical skills are hard skills associated with the use of tools, equipment related to work properly and efficiently, as well as all technical matters. In the view of Agada, (2014) technical skills are the knowledge and skills specific to a particular occupation or group of occupations. In this study, mechanical technical skills refer to the ability to repair, service and maintain engine components expertly and well in accordance to set standard or manufacturer instructions. Technical skills according to Udogu (2015) are needed in maintaining and servicing modern motor vehicle ignition system includes, perform magnetic sensor testing, use plug wire or adapter to check for spark, test run the ignition system using the multi-meter, check the crank sensor using diagnostic tool, check the battery to make sure there is ample voltage to start the engine, test and diagnose defective regulator sensor. Furthermore, Abwage (2011) stated that the fuel supply system of spark ignition engine consist of fuel tank, fuel lift pump, fuel pipes, sediment bowl and carburetor. The functions of the carburetor includes: to mix the air and fuel thoroughly, atomize the fuel, regulate the air-fuel ratio at different speeds and loads on the engine and supply correct amount of mixture at different speeds and loads. These roles are paramount in the operations of engine bios from the carburetor the fuel goes to the engine cylinder through inlet manifold of the engine. In short both generic and technical skills are essential for motor vehicle mechanics to help in the repairing and maintenance of modern motor vehicles.

Maintenance is described as an action taken on any things to keep it working. Okwelle, Beako and Ajie, (2017) explained that maintenance is a repair activity carried out on equipment, vehicles or other machineries to keep them unaltered, and if altered, to restore them to their original state. Maintenance in the content of this study is the process at which motor vehicles part get serviced or charge before they break down. The proper and generic and technical skills are required for maintaining modern automotive. Modern auto motives vehicles are those vehicle equipped with significant network of electronic systems. Isaac (2015) explained that automotive vehicles of nowadays equipped with a significant number of networks of electronics systems by which advanced vehicle control, elimination of bulky wiring and sophisticated features are achieved. The researcher further explained that most of the features are enabled by the use of distributed electronic systems including sensors, switches,

actuators and Electronic Control Units (ECUs). The motor car of today has over fifty or more individual ECUs communicating over multiplexed data networks such as Controller Area Network (CAN), Local Interconnect Network (LIN) and Flex Ray for X-by-wire applications.

There is a paradigm shift in recent years from Off- Board dealership-based diagnosis and repair to On-Board remotely assisted diagnosis and in vehicle diagnosis scheme will improve customer expectations and satisfaction for vehicle reliability. Satisfactions of customers are not met due to in competencies of motor vehicle mechanics and graduates of automobile on modern automotive. Furthermore, rapid technological changes in Automobile sector have increased the need for providing technical skills to enable automobile technicians, master craftsmen and craftsmen to cope with the emergent workplace skills. As measures to keep education and training in tune with the knowledge and skills required in the world of work, informal training of craftsmen, school courses and curricula could be reviewed, enriched and updated regularly in line with changes that are taking place in the industries. Thus, it is imperative to investigate the generic and technical skills possessed by motor vehicle mechanics in maintenance and repairs of modern automobiles in Niger State.

### **Statement of the Problem**

The setback in the process of repairs or maintenance of automobile may be due to Some factors such as lack of generic and modern technical skills, for example, lack of modern workshop tools and equipment, poor work attitude, inadequate technical information, poor communication skills, bad leadership skills and so on. Consequently, this may lead to some of these workshops folding up, accident or breaking down of a vehicle on the road due to lack of competent motor vehicle mechanics (Idris & Francis, 2019). In the opinion of Jika (2010), half-baked auto mechanic in the society often cause more damage to vehicles when they are contracted to service them and as such, modern automobile suffer disrepair. The MVM are expected to possessed modern technical skills as well as generic skills that allows for flexibility, adaptability and ability to work across range of jobs, in the automobile workshop. This underscores the reason for which this study is undertaken to determine the generic and technical skills needed of MVM in maintenance and repairs of modern automotive in automobile workshops in Niger States Nigeria.

### **Purpose of the Study**

The purpose of the study is to determine;

1. The generic skills needed by motor vehicle mechanics in the maintenance and repairs of modern automobiles in Niger State
2. The technical skills needed by motor vehicle mechanics in the maintenance and repairs of modern automobiles in Niger State?

### **Hypotheses**

The following hypotheses were formulated to guide the study and were tested at 0.05 level of significance.

1. There is no significant difference in the mean responses of MVM teachers and automobile technology lecturers on the generic skills needed by motor vehicle mechanics in maintenance and repairs of modern automobiles in Niger State.
2. There is no significant difference in the mean responses of MVM mechanic teachers and automobile technology lecturers on technical skills needed by motor vehicle mechanics in maintenance and repairs of modern automobiles in Niger State.

### **Methodology**

The research adopted a descriptive survey design to elicit information from automotive mechanics in Niger State. In the view of Anyakoha (2009), a descriptive survey research design is a kind of research design in which a group of people studied by collecting and analyzing data using questionnaire to determine the opinions, attitudes, references and perception of persons. The survey research is aimed at identifying the characteristics of the defined population with respect to specific variables, hence, it is appropriate for this study because the study aims at determining the generic and technical skills needed by motor vehicle mechanic in maintenance and repairs of modern

automotives in Niger State, Nigeria. The targeted population for the study was 6,930 respondents comprising of 2,100 highly experienced motor vehicle mechanics master craftsmen, 4800 moderately experienced motor vehicle mechanics master craftsmen which were determined by the years of experiences (Moderately Experienced 1-20 years; Highly Experience 21 years -above), 13 Automobile Technology Lecturers and 17 Motor Vehicle Mechanics Teachers from all the Tertiary institutions and Technical Colleges offering motor vehicle mechanics works in Niger State. A proportionate stratified random sampling technique was used to drawn 10% of each highly experienced Motor Vehicle Mechanics (MVM) master craftsmen and moderately experienced MVM master craftsmen from the three Senatorial Zones of Niger State due to their population.

The instrument that was used for data collection was a structured questionnaire titled: Motor Vehicle Mechanic, Generic and Technical Skills Maintenance and Repairs Questionnaires (MVMGTSMRQ). The instrument was validated by three experts in the Department of Industrial and Technology Education, Federal University of Technology Minna Niger State; this was done in order to assess the questionnaire items in terms of clarity of the instruction to the respondents as well as adequacy and appropriateness of the items in order to address the problem of the study. The validated instrument was pilot tested on a randomly selected sample size of 15 highly experienced master craftsmen and 21 moderately experienced master craftsmen in Kwara State as well as three automobile technology education lecturers from College of Education, Lafiagi and five motor vehicle mechanics teachers from three Technical Colleges in Kwara State to determine the reliability coefficient of the instrument using split half reliability method. The Overall reliability coefficient of the instrument was 0.83 indicating that the instrument had a high reliability. Mean and standard deviation were used to answer research questions. All sections of research questions were structured so that respondents expresses their opinions on four points rating scale of Highly Needed (HN) = 3.50-4.00; Needed (N) = 2.50-3.49; Moderately Needed (MN) = 1.50-2.49 and Not Needed (NN) =0.50-1.49 respectively. Similarly, the decision on the null hypotheses formulated for the study were based on comparing significant value with ( $p < .05$ ) level of significant, that is where the significant value was less than ( $p < .05$ ) the hypotheses was rejected, while equal or greater than ( $p > 0.05$ ) level of significant the hypotheses were accepted.

**Results**

**Research Question 1**

What are the generic skills needed by motor vehicle mechanics in maintenance and repairs of modern automotives?

The data for answering research question one were presented in table 1.

**Table 1: Means Responses and Standard Deviation of Respondents as Regards the generic skills needed by motor vehicle mechanics in maintenance and repairs of modern automotives.**

S/N	ITEMS	$\bar{X}_{nT}$	$SD_T$	R
1	Perfect commitment to duties	3.50	0.52	HN
2	Habit of punctuality at work	2.86	1.03	N
3	Moral integrity on the job	3.14	1.03	N
4	Readiness skills at work	3.50	0.52	HN
5	Loyalty to duty	3.00	1.04	N
6	Efficiency at work	3.36	0.49	N
7	Perfect effectiveness	3.71	0.47	HN
8	Devotion to duty	3.57	0.51	HN
9	Diligence in supervision	3.50	0.52	HN
10	Enthusiasm at work	3.43	0.94	N
11	Zealousness in performing one's duties	3.43	0.76	N
12	Ethical good work	3.93	0.27	HN

**Continuation of Table 1**

13	Quick and eager to learn	3.93	0.27	HN
14	Develop habit of contentment	3.29	0.83	N
15	Creativity in the job	3.14	1.03	N
16	Division of labour to right persons	3.79	0.43	HN
17	Obedience of rules and regulations	4.00	0.00	HN
18	Patience at work	3.50	0.52	HN
19	Mastery ability of work	3.50	0.52	HN
20	Competence in attending to responsibilities	3.57	0.51	HN
21	Seek for improved skills	3.35	1.28	N
22	Providing feedback	3.14	1.03	N
23	Obedience to superior	3.00	1.04	N
24	Mentoring skills	3.43	0.51	N
25	Expertise insightfulness to work	3.14	1.03	N
26	Leadership style	3.36	1.28	N
27	Followership traits	3.29	0.99	N
28	Turning challenges to opportunities	3.14	1.03	N
29	Ability to Recall	3.29	0.47	N
30	Capability in turning weaknesses to strength	3.14	1.03	N
31	Ability to exhibit good ethics	3.43	0.51	N
32	Competency to exhibit integrity	3.33	0.49	N
33	Ability to take risk	3.43	0.51	N
34	Readiness to tackle challenging tasks, even when success is uncertain	2.71	0.99	N
35	Exhibiting of social skills	2.93	1.49	N
36	Ability to make good planning	3.64	0.49	HN
<b>Grand Mean/SD</b>		<b>3.37</b>	<b>0.70</b>	<b>N</b>

**Keys** N= Numbers of Respondents;  $\bar{X}_n$ = weighted mean for generic skills needed category,  $SD_T$  = Average Standard Deviation, R= Remark.

Table 1 shows the mean responses of the respondents on the 36 items posed to determine the generic skills needed by motor vehicle mechanics in maintenance and repairs of modern automotives with a grand mean of 3.37 which implies that the motor vehicle mechanics needed the generic skills on maintaining and repairs of modern automotives. The standard deviation of items ranges from 0.00 to 1.49. The standard deviation showed that the respondents were not too far from the mean and were closed in one another in their responses. This closeness of the responses adds values to the reliability of the item.

**Research Question 2**

What are Technical skills needed by motor vehicle mechanics in maintenance and repairs of modern automotives in Niger State?

The data for answering research question two were presented in Table 4.2

**Table 2: Mean Response and Standard Deviation of Respondents as Regards the technical skills needed by motor vehicle mechanics in maintenance and repairs of modern automotives in Niger State**

S/N	Braking System	$\bar{X}_{nT}$	SD	R
1	Ability to detect worn disc plate	3.64	0.49	HN
2	Competence in recognizing a defective Anti-lock Braking System (ABS) warning light	3.29	0.99	N
3	Comprehension in test repaired of braking system for functionality.	3.50	0.77	HN
4	Skills in identifying various component of the braking system	3.71	0.47	HN
5	Ability to replace brake drum	3.57	0.51	HN
6	Skills in carry out mechanical tests on the braking system	3.29	0.99	N
7	Ability to check the operation of the braking system adjusts and repair according to the manufactures specification.	3.86	0.53	HN
8	Skills in replace faulty or bad braking system with new one	3.86	0.53	HN
9	Expertise in selecting appropriate tools and equipment for the maintenance of automotive braking system	3.86	0.53	HN
10	Intelligence in service automatic braking system correctly	3.86	0.53	HN
11	Dexterity in carry out preventive maintenance in the braking system	3.71	0.47	HN
12	Ability to diagnose common brake system problems and repair them.	3.64	0.74	HN
13	Ability to install brake shoes.	3.71	0.47	HN
14	Competence in checking for signs of leakages in the braking system.	3.43	0.94	N
15	Skills in repairing master cylinder.	3.57	0.51	HN
16	Skills in installing master cylinder	3.64	0.74	HN
17	Expertise in bleeding master cylinder before installing.	3.50	0.52	HN
18	Capability in adjusting brake pedal height and free travel.	3.79	0.43	HN
19	Ability to detect brake pad wear.	3.43	0.94	N
20	Skills to remove and install wheel cylinder.	3.71	0.47	HN
21	Ability to adjust and centralize major and minor brake shoes.	3.43	0.94	N
22	Competence in inspect, clean, remove and install brake drum.	3.71	0.47	HN
23	Skills in bleeding different types of braking system	3.71	0.47	HN
24	Understanding process in removing and installing brake pads.	3.64	0.49	HN
<b>Transmission Systems</b>				
25	Skills in identify different types of clutch	3.79	0.43	HN
26	Ability to service different types of clutch.	3.14	0.41	N
27	Competence in installing clutch disc and pressure plate assembly.	3.71	0.47	HN
28	Understanding process in replace clutch pilot bushing	3.29	0.99	N
29	Capability to adjust clutch release fingers.	3.57	0.51	HN
30	Ability to adjust types of clutch linkages.	3.14	1.03	N

**Continuation of Table 2**

31	Skills to diagnose clutch problems.	3.57	0.51	HN
<b>Ignition System</b>				
32	Ability to service battery, alternator and regulator.	3.00	1.04	N
33	Skills to install and adjust contact points.	3.50	0.52	HN
34	Competency testing, replacing and adjusting electronic distributor parts.	3.29	0.99	N
35	Competency in removal and replacement of a distributor assembly.	3.64	0.49	HN
36	Capability in adjust ignition timing.	3.64	0.49	HN
37	Skills in Cleaning sparking plugs	3.36	0.84	N
38	Skills in replacing spark plugs	3.57	0.65	HN
39	Skills in checking the primary wiring for signs of cracking.	3.29	0.99	N
40	Identify the on-board diagnostic port in modern vehicles	3.64	0.49	HN

**On-Board Diagnostic Port Interface in Modern Vehicle**

41	Locate the diagnostic link connector	3.71	0.47	HN
42	Connect the vehicle on-board computer to a laptop using an interface and an on-board diagnostic software	3.71	0.47	HN
43	Carryout a careful visual inspection	3.50	0.52	HN
44	Connect the on-board diagnostic scan tool or handheld tester to data link connector	3.14	1.03	N
45	Check and retrieve diagnostic trouble codes and freeze framed stored in the electronic control module memory	3.43	0.51	N
46	Record and print diagnostic trouble codes and freeze frame data	2.07	0.47	MN
47	Interpret diagnostic trouble codes and freeze frame data	3.50	0.52	HN
48	Set the check mode diagnosis	1.43	0.51	NN
49	Perform problem symptom confirmation	2.50	0.52	N
50	Carryout parts inspection using problem symptom table	2.14	0.77	MN
51	Inspect circuits using diagnostic trouble code chart	2.00	1.04	MN
52	Interrogate circuits using the electronic control module processor power	3.64	0.49	HN
53	Use on-board diagnostic tools to amend the automobile computer operating programme	3.43	0.94	N
54	Inspecting faulty, sensors and actuators	1.71	0.99	MN
55	Servicing faulty, sensors and actuators	3.29	0.61	N
56	Clear diagnostic trouble codes and freeze frame data	2.57	0.65	N
57	Switch off the interface correctly	2.64	1.28	N
<b>On-Board Diagnostic Software on Wheel Sensor</b>				
58	Identify the on-board diagnostic port in modern vehicles	3.21	0.69	N
59	Connect the diagnostic device to the 16-pin on-board diagnostic Connector	3.36	0.74	N

**Continuation of Table 2**

60	Retrieve Diagnostic Trouble Codes (DTC's)	3.14	0.77	N
61	Record and print diagnostic trouble codes	2.64	0.99	N
62	Interpret Diagnostic Trouble Codes (DTC's)	3.79	0.43	HN
63	Perform visual inspection of wheel speed sensor and cables	3.57	0.51	HN
64	Check power supply of the wheel speed sensor	3.57	0.51	HN
65	Service the wheel speed sensor	3.14	1.03	N
66	Visually inspect the wheel speed sensor pulsars for chipped or damaged teeth	2.14	0.66	MN
67	Identify defective wheel speed sensor	3.36	1.28	N
68	Check wheel speed sensor and the pulse ring	2.86	1.03	N
69	Carry out speed sensor signal testing	2.64	0.49	N
70	Remove, adjust and replace wheel speed sensors	2.93	1.14	N
71	Replace electrical wiring to the wheel speed sensor	2.07	1.49	MN
72	Perform a test drive to check the wheel speed sensor after replacement	2.50	0.52	N
73	Carryout visual inspection of the wiring and the mechanical components	2.29	1.38	MN
<b>Grand Mean/SD</b>		<b>3.21</b>	<b>0.72</b>	<b>N</b>

**Keys** N= Numbers of Respondents;  $\bar{X}_{nT}$ = weighted mean for technical skills needed category,  $SD_T$  = Average Standard Deviation.

Table 2 shows the mean responses of the respondents on the 73 items posed to determine the technical skills needed by motor vehicle mechanics in maintenance and repairs of modern automotive with a grand mean of 3.21 which implies that the motor vehicle mechanics needed technical skills in maintenance and repairs of modern automobiles. The standard deviation of items ranges from 0.43 to 1.49. This standard deviation showed that the respondents were not too far from the mean and were closed in one another in their responses. This closeness of the responses adds values to the reliability of the item.

**Testing of Null Hypotheses**

**Hypothesis 1**

There is no significant difference in the mean responses of MVM teachers and Automobile technology lecturers on the generic skills needed by motor vehicle mechanics in maintenance and repairs of modern Automotive in Niger State.

Data for testing null hypothesis one is presented in Table 3.

**Table 3: Z-test Analysis of the Mean Responses of MVM Teachers and Automobile Technology Lecturers on the Generic Skills Needed by Motor Vehicle Mechanics in Maintenance and Repairs of Modern Automotives**

Motor vehicle	N	Mean	SD	df	P-value	Alpha level	Decision
MVM Teacher	17	3.13	0.51	12	0.15	0.05	Accepted
Automobile Technology lecturers	11	3.55	0.46				

The analysis of the results presented in Table 3 revealed that since p-value 0.46 is greater than 0.05 this implies that there is no significance difference in the mean responses of both groups of respondents. Therefore, the null hypothesis of no significant difference in the mean responses of MVM teachers and Automobile technology lecturers on the generic skills



needed by motor vehicle mechanics in maintenance and repairs of modern Automotive in Niger State was upheld.

**Hypothesis 2**

There is no significant difference in the mean responses of MVM mechanic teachers and Automobile technology lecturers on technical skills needed by motor vehicle mechanics in maintenance and repairs of modern Automotive in Niger State.

Data for testing hypothesis two are presented in Table 4.

**Table 4: Z-test Analysis of the Mean Responses of MVM Teachers and Automobile Technology Lecturers on the Technical Skills Needed by Motor Vehicle Mechanics in Maintenance and Repairs of Modern Automotives**

Motor vehicle	N	Mean	SD	df	P-value	Alpha level	Decision
MVM Teacher	17	3.21	0.18	12	0.52	0.05	Accepted
Automobile Technology lecturers	11	3.29	0.27				

The analysis of the results presented in Table 4 revealed that since p-value 0.52 is greater than 0.05 this implies that there is no significance difference in the mean responses of both groups of respondents. Therefore, the null hypothesis of no significant difference in the mean responses of MVM teachers and Automobile technology lecturers on the technical skills needed by motor vehicle mechanics in maintenance and repairs of modern automotives in Niger State was upheld.

**Discussion of Findings**

The Findings in Table 1 relating to research question 1 revealed that generic skill needed such as perfect commitment to duties, habit of punctuality at work, moral integrity on the job, readiness skills at work, loyalty to duty mention but a few are generic skills needed by the MVM teachers and automobile technology lecturers. This is in- line with Oluyomi (2015) who stated that communication and analytical skills are rated high by all the sectors. The results indicate the relative importance of generic skills in all the sectors which to some extent shows the context-dependency nature of generic skills. The study suggests that for Nigerian university graduates to meet the challenge of constant change in skills demand in the labour market, Nigerian universities should look for ways of addressing the identified skills needs of the different sectors of the labour market in their curricular. This is in agreement with Igwe, Ikenwa and Jwas shaka (2017) that MVMW in Nigeria need skill improvement training in On-Board Diagnostic (OBD) systems for effective teaching of Petrol Engine Maintenance Audu, Musta’amal, Yusri, and Inti, (2014) that the teaching methods employed by motor vehicle teachers were mostly lectures and demonstration.

The Findings in Table 2 relating to research question 2 revealed that technical skill needed such as ability to detect worn disc plate, Competence in recognizing a defective Anti-lock Braking System (ABS) warning light, skills in identify different types of clutch, Ability to service different types of clutch mention but a few are technical skills needed by the MVM teachers and automobile technology lecturers. This is in consonant with Idris and Francis (2019) who revealed that technical skills posses by MVM students is not enough for effective maintenance and repair of modern vehicles. As a result the MVM students’ are faced with a lot of challenges in the repair of modern vehicles. This further threatens and discourages MVM students from practicing their trade upon graduation. Therefore, there is need to empower the MVM students with the requisite skills for effective performance in automobile diagnoses, maintenance and repairs. Doka (2007) supported this assertion by stating that technical knowledge and skills needs of technical college graduates should form the basis for planning and teaching mechanical engineering trades namely, fabrication and welding, MVM work, mechanical engineering practice and foundry craft practice.

The opinions of the respondents on the technical skills requisites of MVM students in the maintenance of modern vehicles in Nigeria was supported by Okwelle, *et al.*, (2017) who stated that the new technologies in modern automobiles demand new work skills and therefore new educational requirements. He added that common reactions to such changes in technology and occupational skills have been the re-training of workers to update their technical knowledge and vocational skills. This in turn usually requires regular review of MVMW curriculum in technical and technological institutions so that the school programmes can reflect the actual demands in the automobile work place (Medina, 2011).

### **Conclusion**

The study determines the generic and technical skills required by motor vehicle mechanic in maintenance and repairs of modern automotive in Niger State, Nigeria. The findings of the study serve as the basis for making the following conclusion. The generic skill needed such as perfect commitment to duties, habit of punctuality at work, moral integrity on the job, readiness skills at work, loyalty to duty mention but a few are generic skills needed by the MVM teachers and automobile technology lecturers. It was also concluded that technical skill needed such as ability to detect worn disc plate, Competence in recognizing a defective Anti-lock Braking System (ABS) warning light, skills in identify different types of clutch, Ability to service different types of clutch mention but a few are technical skills needed by the MVM teachers and automobile technology lecturers.

### **Recommendations**

Based on the findings, the following recommendations were made:

1. Organizing retraining courses to update and equip automobile mechanics with the requisite generic skills for effective maintenance of modern vehicles.
2. Government should establish a modern motor vehicle mechanic workshop that would train competent craftsmen on mechanical technical skills required in maintaining and repairing of automobile.
3. The industries and motor vehicle companies should establish more service centers to train interested youths in a subsidize rate, and use modern computer diagnostic equipment in the motor vehicle mechanic workshop to encourage perfect mechanic works which will contributes to both generic and technical skills of the automobile mechanics.
4. The industries and motor vehicle companies should establish more service centers to train interested teacher and lecturers in a subsidize rate in order to use modern computer diagnostic equipment in the motor vehicle mechanic school workshop to encourage perfect mechanic works.

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