

## COMPETENCY IMPROVEMENT NEEDS OF CRAFTSMEN IN MOTOR MECHANIC WORK FOR ENHANCING EMPLOYABILITY IN AUTOMOBILE INDUSTRIES IN OGUN STATE

**Mukaila A. YISA**

*Department of Industrial Technical Education*

*Tai Solarin University of Education*

*Ijebu Ode*

*Email: yisama@tasued.edu.ng*

### **Abstract**

*The study was carried out to determine competency improvement needs of craftsmen in motor vehicle mechanic practice for enhancing employability. Three research questions guided the study. A descriptive survey design was employed for the study. The population for the study was 121 craftsmen of motor vehicle mechanic practice from industries in the study area. A structured questionnaire item was used for collecting data from the respondents. Cronbach alpha reliability method was used to determine internal consistency of the questionnaire items; a reliability coefficient of 0.84 was obtained. The data collected were analyzed using weighted mean and improvement needed index (INI). The findings of the study revealed that craftsmen need improvement in the determined competencies in motor vehicle mechanic practice for employment. Recommendations include that all the identified competencies in motor vehicle mechanic work should be packaged and integrated into the curriculum of motor vehicle mechanic practice in technical colleges.*

**Keywords:** Competency, Improvement, Craftsmen, Employability, Automobile Industries

### **Introduction**

The essence of schooling or attending school is to acquire knowledge, skills and attitudes for employment and national building. The combination of knowledge, skills and attitudes is called competence. Competence is the ability to do something successfully or efficiently. UNICEF (2019) defined competencies as sets of behaviours that are instrumental in the delivery of desired results. Rankin (2002), also stated that competency is a collection of behaviours and skills which people are expected to show in their organization.

Skills are learned, while competencies are inherent qualities an individual possesses; which is the combination of skills, knowledge and ability. For the purpose of clarity, Onoh (2011) defined skill as the ability to perform expertly well, facility in performance with dexterity and tact through what one has learnt and practiced in training. Skill is the ability to make a purposeful movement that is

necessary to complete or master a particular task in a given job (Mbah & Umurhurhu, 2016). Skill therefore is the ability and capability acquired through deliberate, systematic, and constant effort to smoothly and adaptively carryout multifaceted activities or job functions involving the maintenance of split air-conditioner. Competency therefore is the combination of skills, knowledge and attitudes to be possessed by motor vehicle mechanic practice craftsmen for effective maintenance of all kinds of automobiles.

Motor vehicle mechanic practice (MVMP) is one of the trades offered in technical colleges in Nigeria. MVMP is one of the vocational trades in which students are to acquire knowledge, skills and attitudes to work efficiently. According to Olayinka (2009), MVMP is designed to produce competent automechanics craftsmen for Nigeria technological and industrial development. Craftsmen in this study are individuals who studied trades in technical colleges and graduated. They are sometimes called skilled person because of the nature of the training they received. According to National Board for Technical Education (NBTE) (2001) auto mechanics craftsmen are expected to test, diagnose, service and completely repair any fault on the motor vehicle to the manufacturers' specification. In the report of NBTE (2004), the aim of motor vehicle mechanic practice is to give training and impart the necessary skills leading to the production of craftsmen, technicians and other skilled personnel who will be enterprising and self-reliant. Report of Federal Government of Nigeria (2004) specified that components of MVMP are arranged in modules and the components include: engine maintenance, suspension, steering and braking system, auto electricity, transmission reconditioning work, major engine repair works and service station mechanic. Students and craftsmen of motor vehicle mechanic practice are expected to acquire skills in these modules under the guidelines of their teachers.

Technical colleges are post primary schools where students learn skills in various occupations. According to Bakare (2009), the technical colleges are charged with the production of craftsmen and technicians. Akpan (2003) said that technical colleges are designed to prepare individuals to acquire practical skills, basic scientific knowledge and attitudes required as craftsmen and technicians at sub-professional levels. Okoro (2006) said they are regarded as the principal vocational institutions in Nigeria that give full vocational training intended to prepare students for entry into various occupations as operatives or artisans and craftsmen. Graduates who underwent training in motor vehicle mechanic practice are known as craftsmen and they are expected to have

possessed competencies for success in engine maintenance, suspension, steering and braking system, auto electricity, transmission reconditioning work, major engine repair works and service station mechanic. Observations reveal that these craftsmen have little or no skills in MVMP. Most of them remain jobless in the society and they neither set up their workshops nor employed by automobile industries in the State. Most of these craftsmen could not secure appointment in standard automobile maintenance industries. Moreover, Jika (2010) stated that half-baked auto craftsmen in the society often cause more damages to vehicles when they are contracted to service them. The author further explained that many serviced vehicles by these craftsmen have sent many people to their early deaths due to inadequate services given to these vehicles. In order for these craftsmen to be employed or perform their functions in society, they need improvement in their competencies.

Improvement is the process of making something better than before. Improvement according to Olaitan, Amusa and Azouzu (2010) is ability or condition for becoming better than before. In this study, improvement is the process of helping graduates in the area of study acquire to a higher proficiency level, work skills in motor vehicle mechanic practice for greater efficiency. For work to be done requires energy and skills and one needs competencies for sustainable employment. Employment according to Onoh (2011) means working for one's self or an employer. To be employed, an individual need to be highly skill in a trade. To know where craftsmen of motor vehicle mechanic practice need improvement, their competencies are necessary to be assessed. It will reveal the level of knowledge, skills and attitudes possessed and the areas in which improvement is needed based on their performance gap. The purpose of this study therefore is to determine the competencies improvement needs of craftsmen in motor vehicle mechanic practice for enhancing employability. Specifically the study sought to determine: Work skills improvement need of graduates in engine maintenance, work skills improvement need of graduates in steering and braking system and work skills improvement need of graduates in auto electricity.

### **Research Questions**

The following research questions guided the study

1. What are the work skills improvement needs of graduates in engine maintenance?
2. What are the work skills improvement needs of graduates in steering and braking system?
3. What are the work skills improvement needs of graduates in auto electricity?

## Methodology

A descriptive survey design was adopted for the study. A descriptive survey design in the opinion of Osuala (2005) is a design that studies characteristics and focuses on people, the vital facts of people and their beliefs, opinions, attitude, motivation and behaviour. This design was suitable for the study since it intends to obtain data from the craftsmen of motor vehicle mechanic practice from technical colleges in Ogun State of Nigeria. The study was carried out in Ogun State of Nigeria. The population for the study was 121 craftsmen of motor vehicle mechanics practice. There was no sample for this study because of small size of the population. The instrument for data collection was a structured questionnaire that contained 43 competency items and the questionnaire was divided into two categories of needed and performance. The needed category has a 4-point response scale of Highly Needed, Averagely Needed, Slightly Needed and Not Needed; while the performance category also has 4-point response scale of High Performance, Average Performance, Low Performance and No Performance with a corresponding value of 4, 3, 2 and 1 for the two groups of scales respectively. The instrument was validated by three experts in the Department of Industrial Technical Education, University of Nigeria, Nsukka. Cronbach alpha reliability method was employed to determine the internal consistency of the questionnaire items with a reliability coefficient of 0.84. One hundred and twenty one copies of the questionnaire were administered by the researchers and three research assistants on the craftsmen in the study area with a week interval for the completion of the questionnaire. One hundred and fifteen copies of the questionnaire were retrieved which represented 95.04 percent return rate. Weighted Mean and Improvement Needed Index (INI) were used in analyzing data collected in order to answer the research questions. The improvement needs was determined as follows:

- i. the mean ( $X_n$ ) of the needed category was determined for each item.
  - ii. the mean ( $X_p$ ) of the performance category was also determined for each item.
  - iii. the performance gap (PG) was therefore determined by finding the difference between  $X_n$  and  $X_p$  for each item; that is  $PG = X_n - X_p$
- (a). Where the value of PG is positive (+), it means improvement is needed because, the level at which the craftsmen performed in motor vehicle mechanic practice is lower than what is needed.
  - (b). Where PG is negative (-), it means improvement is not needed because, the craftsmen of motor vehicle mechanic practice performed the operations of the item is more than what is required.

- (c). Where PG value is zero (0), it means improvement is also not needed because; the level at which the craftsmen were performed in motor vehicle mechanic practice items is equal to the level that was needed.

Each question item was assigned a four point response scale of strongly needed, needed, slightly needed and not needed with values of 4, 3, 2 and 1.

### **Results**

The results for the study were obtained from the research questions answered through data collected and analyzed.

#### **Research Question 1**

What are the work skills improvement needs of graduates in engine maintenance?

The data for answering research question 1 are presented in Table 1.

**Table 1:** Performance Gap Analysis (PGA) of the Mean Ratings of Motor Vehicle Mechanic Work Craftsmen on Competency Improvement Needs in Engine Maintenance.

S/No	Item statement	Xn	Xp	PG = Xn-Xp	Remark
1	Locate faults in the automobile using appropriate tools and equipment	3.80	2.00	1.81	Agree
2	Remove faulty units from the automobile for servicing	3.60	1.78	1.82	Agree
3	Use appropriate tools and equipment for a particular operation on the vehicle	3.57	3.28	0.29	Agree
4	Dismantle fault unit correctly	3.62	3.55	0.07	Agree
5	Identify bad component	3.43	2.35	1.08	Agree
6	Carry out preventive and corrective maintenance correctly	2.82	2.66	0.16	Agree
7	Conduct engine performance test and determine needed repair	3.65	1.91	1.74	Agree
8	Inspect, repair and replace electronic ignition components	3.78	2.63	1.15	Agree
9	Connect types of protective device correctly	3.64	2.61	1.03	Agree
10	Conduct engine performance test using engine analyzer and determine needed repair	3.52	2.01	1.51	Agree
11	Diagnose emission control system and determine needed repair	3.76	2.06	1.70	Agree
12	Perform on board computer diagnosis	3.75	1.60	2.15	Agree
13	Perform oil and lubrication service on normally aspirated and turbo charged engines	3.69	1.99	1.70	Agree
14	Servicing carburetors correctly	3.70	2.00	1.70	Agree
15	Replace faulty alternator, fuel pump and plugs correctly	3.65	2.03	1.62	Agree

Table 1 revealed that the performance gaps of 15 competency items are positive and ranged from 0.07 to 2.15. This indicated that the graduates need improvement in 15 competency items of engine maintenance. In general, the result revealed that craftsmen of MVMP from technical colleges need improvement in competency items for engine maintenance for employment.

**Research Question 2**

What are the work skills improvement needs of graduates in steering and braking system?

The data for answering research question 2 are presented in Table 2.

**Table 2:** Performance Gap Analysis (PGA) of the Mean Ratings of Motor Vehicle Mechanic Practice Craftsmen on Competency Improvement Needs in Steering and Braking System.

S/No	Item statements	Xn	Xp	PG Xn-Xp	Remarks
1	Identify faults in brake system	3.56	2.00	1.56	Agree
2	Remove bad brake pad from the drum.	3.67	2.11	1.56	Agree
3	Carry out preventive maintenance in both steering and braking systems	3.61	2.04	1.57	Agree
4	Remove power steering from the main unit	3.20	1.98	1.22	Agree
5	Servicing automatic braking system correctly	2.78	1.10	1.68	Agree
6	Select appropriate tools and equipment for the maintenance of power steering and automatic braking system.	3.03	1.38	1.65	Agree
7	Replace faulty or bad braking system with new one	3.54	1.91	1.63	Agree
8	Check operation of antilock braking system, adjust and repair according to manufacturer's specifications.	2.99	2.00	0.99	Agree
9	Operate and maintain all wheel steering system	3.05	2.01	1.04	Agree
10	Carry out all kinds of mechanical test on steering and braking system	3.56	1.99	1.57	Agree
11	Assemble repair or maintained steering system correctly	3.67	1.59	2.08	Agree
12	Test repaired braking system for functionality	3.45	2.50	0.95	Agree
13	Reinstall maintained or repaired power steering of modern vehicle.	2.60	1.69	0.91	Agree

Table 2 revealed that the performance gaps of all the 13 competency items ranged from 0.91 to 2.08. All the performance gap values are positive indicating that the craftsmen need improvement in competency items for steering and braking system.

**Research Question 3**

What are the work skills improvement needs of graduates in auto electricity?

The data for answering research question 3 are presented in Table 3.

**Table 3:** Performance Gap Analysis (PGA) of the Mean Ratings of Motor Vehicle Mechanic Practice Craftsmen on Competency Improvement needs in Auto Electricity.

S/No	Item statements	Xn	Xp	PG = Xn-Xp	Remarks
1	Identify faults in brake system	3.56	2.00	1.56	Agreed
2	Remove bad brake pad from the drum.	3.67	2.11	1.56	Agreed
3	Carry out preventive maintenance in both steering and braking systems	3.61	2.04	1.57	Agreed
4	Remove power steering from the main unit	3.20	1.98	1.22	Agreed
5	Servicing automatic braking system correctly	2.78	1.10	1.68	Agreed
6	Select appropriate tools and equipment for the maintenance of power steering and automatic braking system.	3.03	1.38	1.65	Agreed
7	Replace faulty or bad braking system with new one	3.54	1.91	1.63	Agreed
8	Check operation of antilock braking system, adjust and repair according to manufacturer's specifications.	2.99	2.00	0.99	Agreed
9	Operate and maintain all wheel steering system	3.05	2.01	1.04	Agreed
10	Carry out all kinds of mechanical test on steering and braking system	3.56	1.99	1.57	Agreed
11	Assemble repair or maintained steering system correctly	3.67	1.59	2.08	Agreed
12	Test repaired braking system for functionality	3.45	2.50	0.95	Agreed
13	Reinstall maintained or repaired power steering of modern vehicle.	2.60	1.69	0.91	Agreed

Table 3 revealed that the performance gaps of all the 15 competency items ranged from 0.28 to 1.43. All the performance gap values are positive indicating that the craftsmen need improvement in competency items for auto electricity.

### Discussion of Findings

The results of this study in research question 1 revealed that performance gaps of 15 competency items are positive and ranged from 0.7 to 2.15, this indicated that the graduates need improvement in 15 competency items of engine maintenance. In general, the result revealed that craftsmen of MVMP from technical colleges need improvement in competency items for engine maintenance

employment. The results agreed with the findings of Akinduro (2006) who conducted a study on electrical installation and maintenance work skill needed by technical colleges to enhance their employment in Ondo State where he found out that graduates required various skills in domestic and industrial cable joining, battery charging, electrical machine winding for employment after graduation. The result of the study in research question 2 revealed that performance gaps of 13 competency items ranged from 0.11 to 2.08, this indicated that performance values are positive indicating that the craftsmen needed improvement in competency items for steering and braking system and research question 3 revealed that performance gaps of the fifteen (15) competency items ranges from 0.28 to 1.47 indicates that the craftsmen needed improvement in competency item for auto electricity. The research question 2 and 3 conformity with the findings of Bakare (2006) who carried out study on safety practices skills needed by electrical electronic students of technical colleges in Ekiti state. The author found out that students of electrical/electronic needed safety practices in skills using hand tools, operating power tools, operating electrical machines, working electrical workshops and using instructional manuals or guide. The findings of the authors cited above help to validate the finding of the study.

### **Conclusion**

This study of improvement is a major way of assisting graduates in the area of his specialization in order to acquire skills to higher proficiency level, work skills in motor vehicle mechanic practice for greater efficiency and for work to be done properly it requires energy and skills and one needs competencies for sustainable employment. To be employed, an individual needs to be highly skilled in his trade, for efficiency and effectiveness, craftsmen of motor vehicle mechanic practice therefore needed improvement, competencies are necessary to be assessed for better assurance of performance, based on the performance gap and based on the result of this study craftsmen of MVMP needed improvement in the competency items in order to maintain services and repairs of all kinds of automobile in Ogun State.

### **Recommendations**

Based on the findings of this study, it is hereby recommended that:

- i. All the identified competency items in engine maintenance, steering and braking system and auto electricity be integrated into the curriculum of Motor Vehicle Mechanic Work of technical colleges for training of students.

- ii. Specialist should be employed to teach those competences areas mentioned in the research question in order to impact the skill knowledge to the students.

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