

# Establishing Automobile Repair and Service Workshops at Technical Vocational Education and Training (TVET) Institutions: (Case Study: Takoradi Polytechnic)

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**ABSTRACT** - This study focused on assessing the viability of establishing automobile repair and workshops at TVET institutions using Takoradi Polytechnic as a case study. The study sought to bring to light the need to establish an Auto Repair/Service Workshop TVET Institutions, the socio cultural economic benefits that could be derived from such establishment and lessons that could be learnt by other Polytechnics and tertiary institutions in Ghana.

Data gathered from 150 respondents vehicles users on Takoradi Polytechnic campus via a questionnaire was edited and collated using standardized Microsoft Excel application. 97.3% of the respondents expressed their willingness to utilize a functioning well equipped auto workshop at Takoradi Polytechnic. With some of the reasons being proximity, assured quality and affordability of services. It has been established that a well maintained functioning vehicle has a correlation with productivity, socio-cultural well being of the owners and their finances.

The establishment of automobile repair and service centres at Technical Vocational Education and Training (TVET) Institutions would boost productivity on campus, enhance the skills of the automobile students and prepare them adequately for the real world challenges. It would also generate revenue for the institutions.

**Keywords** – Vehicle, Electronic Management Systems, Workshop, Impact

## 1.0 INTRODUCTION

The need for competent auto repair workshop is paramount to every automobile owner. A fast, reliable, well resourced workshop with skilled and experienced technicians is a delight to all vehicle users. The manual vehicles are gradually fading out of the system with the emergence of electronic management systems (EMS). The repair and maintenance of vehicles with electronic management systems require skilled technicians with the knowledge to diagnose, repair and maintain the vehicles using the appropriate tools to ensure the vehicles operate at the optimum levels. A well resourced workshop is integral in ensuring reliable repair and servicing of vehicles.

Takoradi Polytechnic has a fleet of twenty eight vehicles with eighteen equipped with on-board diagnostics (OBDII). The vehicle population on Takoradi Polytechnic campus numbers over two hundred [1]. According to [2], the total registered vehicle population in Ghana as at March 2012 stood at approximately 1,425,900. Takoradi Polytechnic is also located close to the Sekondi – Takoradi main highway, and the Newsite residential area. A study conducted on vehicular traffic congestion in the Sekondi – Takoradi Metropolis revealed that, Takoradi Polytechnic junction is the busiest intersection in the metropolis with a registered peak volume of 4533 vehicles/ hour during the morning

peak [3]. These fleets of cars generate huge market for repair and maintenance works.

Vehicle owners complain about the challenges they have had to endure to get their cars fixed anytime a fault occurs or for routine maintenance. Roadside fitters/ mechanics often employ the “try and error” method of diagnosing and repairing vehicle faults. The issue of inadequate tools and equipment from such centres, makes the quality of services provided not guaranteed. There is need to equip students to handle real life challenges in the automobile industry and make room for the roadside mechanics to get the needed training to ensure standard working practices.

This paper seeks to bring to light the need to establish Auto Repair/Service Workshops at TVET Institutions using Takoradi Polytechnic as a case study. The socio cultural economic benefits that could be derived from such establishment and lessons that could be learnt by other Polytechnics and tertiary institutions in Ghana.

## 2 MATERIALS AND METHODS

### 2.1 Study Area

This study was undertaken at Takoradi Polytechnic main campus which is located in the Sekondi Takoradi Metropolis of the Western Region from February to May 2016. Sekondi-Takoradi which is the industrial and

commercial centre, is the Western region's largest city with a population of 558,365 [4]. The discovery and commercial exploitation of oil in the region has attracted enormous migration of people from all over the world. Takoradi polytechnic is geographically located on 4.9098° N, 1.7560° W Takoradi Polytechnic community has a population of approximately eight thousand comprising of students, teaching and non teaching staff. The official fleet of the institution stands at twenty eight. Due to limited parking space on and around campus, the average daily cars parked amounts to ninety two (92).

## 2.2 Research Design and Data Collection

The study utilised the survey approach as a data collection mechanism. Relevant data was collected by administering structured questionnaire to one hundred and fifty (150) respondents who served as the sample size for the study, made up of 90 teaching staff, 20 non-teaching staff and 40 students who own vehicles as well as interviews with the transport officer and chief driver of the institution. Five auto workshops owners around Takoradi Polytechnic campus were also interviewed. Secondary data relevant to automobile service centre/repair were obtained from publications to elicit contemporary knowledge on the subject work. Data collected was edited and collated using standardized Microsoft Excel application/software.

## 3 RESULTS AND DISCUSSIONS

### 3.1 Electronic Management Systems

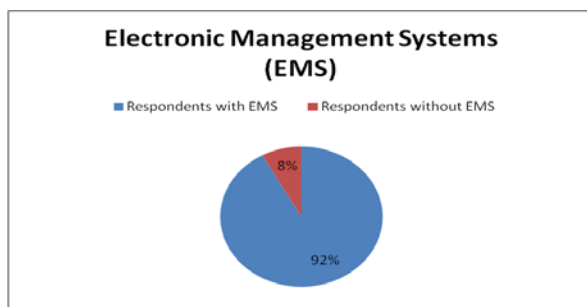


Fig. 1 Users of Electronic Management System Source: Field data/2016

Fig. 1 shows that 138 of the respondents (92%) had electronic management systems i.e. OBD II, tyre pressure monitoring system, navigation system, remote/keyless entry, blind spot detection, adaptive cruise control, Vehicle

Tracking, etc in their vehicles. Their knowledge of the systems were as a result of the error messages which sometimes come on the dash board, the alarm/ peep sound that comes on when a door is not properly locked or the seat belt is not put on and also their engagement with the technicians/ mechanics when a faults develops or for routine maintenance.

### 3.2 Workshop/Service Repair Centres

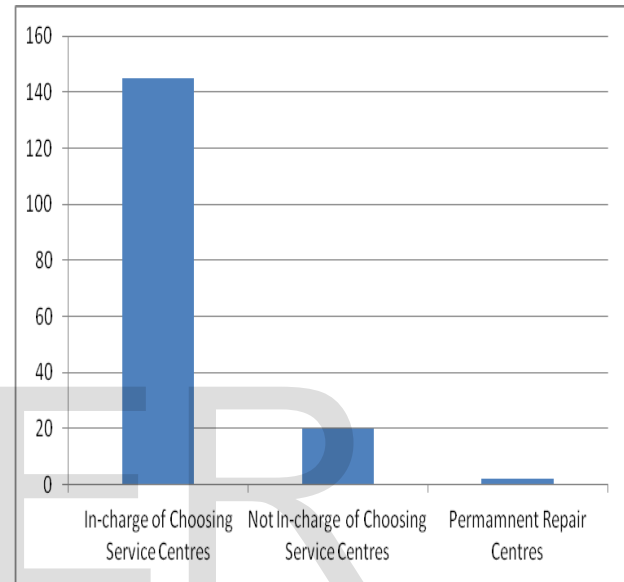


Fig.2 Workshop Centres Source: Field data, 2016

145 of the respondents were in charge of choosing the workshop/repair service centres, 20 had permanent repair centres and 2 had an after sales servicing agreement with the car dealers as indicated in Fig. 2. It came to light that most service centres with electronic diagnostic tools were not difficult to find. Those without permanent centres could not vouch for the quality of services rendered by the numerous service centres. The increase in the number of vehicle service centres could be attributed to the oil find in the western region which has increased the daily fleet of vehicles in the Sekondi Takoradi metropolis. There are five automobile service centres dotted around the borders of Takoradi Polytechnic. Two out of the five are equipped with electronic diagnostics tools and software

### 3.3 Factors That Influence The Choice of a Service Centre

There are several reasons for ones choice of a service centre. It was realized from the responses that people got to know of their current repair centres through recommendations from friends, adverts on television and radio, vehicle breaks down and they resorted to the nearest centre. Some have after-sales servicing agreement with their buyers, which guarantee prompt servicing when the need arise. Factors such as cost, proximity to workplace/residence, reliability of service , trust, good customer care, convenience and effectiveness of staff were weighted by the respondents as to the level of influence that contributed to their choice of a servicing centre.

Numbers ranging from 1 to 5 were assigned to each factor, with 5 been the strongest and 1 the least. The table 1 presents a weighted average the respondents placed on the various factors, which influence their choice of a service centre.

Table 1: A weighted average of Respondents reasons for workshop choice

Factors	Weighted Average
Cost	4.5
Proximity to residence/workplace	4.8
Reliability of service	5
Trust	5
Courtesy / Good customer care	5
Effectiveness of staff	5
Convenience	5
Others: swiftness of service, easy access to spare parts, and auxiliary services such as cleaning of vehicle and pumping of tyre	5

As shown in Table 1, with the exception of cost and proximity to residence, all other factors had a weighted average score of 5.

### 3.4 Spares Parts

According to the data gathered, even though there are numerous spare parts outlets around the twin –city with the largest at Kokomkpe, most automobile spare parts are bought in either Accra or Kumasi main auto parts shops. The reason attributed to this phenomenon is that, the Accra and Kumasi shops have vast range of spares than Takoradi. With the exception of few parts that are ordered online, most automobile parts are bought in Ghana. Four out of

the five service centres operators interviewed had no structured relationship with the spare parts dealers. As and when the need arise, a part is bought and transported to the workshop. There were instances whereby the faulty part was carried over to either Kumasi or Accra, in order to ensure the right one is purchased. One workshop operator had a structured arrangement with the manufactures due to the fact that the outfit is an authorized dealer. This ensures all needed spares are catered for.

### 3.5 Challenges

Respondents enumerated a number of challenges they have encountered over the period with repairers/ workshop owner. Some of which are wrong diagnoses of faults which leads to extra cost, increase down time of the vehicle and in some cases the car develops new fault as a result of wrong diagnoses. Some of the mechanics are not properly trained and certified, so one cannot differentiate between the genuine and the fake ones. There are workshop owners who profess to be specialist in maintaining certain brands of vehicle yet lack the competence. Due to some of the challenges encountered in the past, some have had to repair their cars outside the region. A respondent opined that, he sometimes sends for a mechanic in Kumasi to attend to his vehicle when a fault develops. Due to the non-availability of most parts in the region, the repair periods increases, which sometimes runs into days and weeks. The challenges encountered in some workshops create a lot of inconvenience for the vehicle owners which cause them to make alternative arrangements for transportation to work and home.

### 3.6 Impact on Productivity

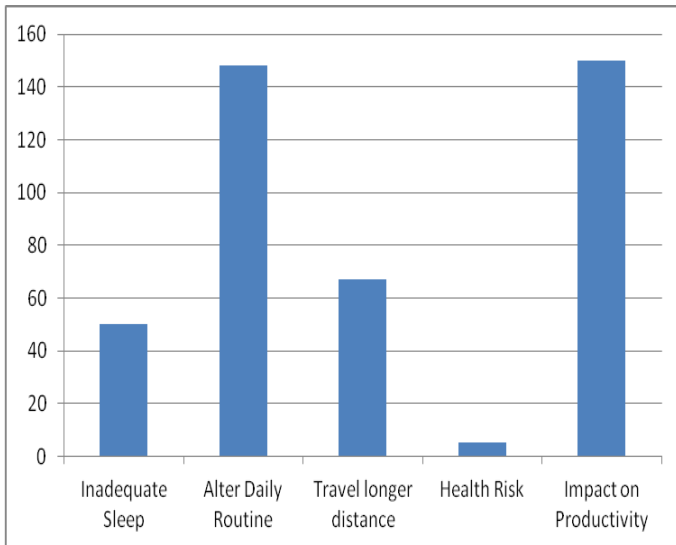


Fig.3 Impact on Productivity Source: Field data, 2016

Workers are mandated to report to work at 8 and close at 5pm. The teaching staff are required to be punctual for lectures and meetings. The respondents enumerated the following as some of the impact of a poorly/delayed servicing of vehicle on productivity; inadequate sleep, an alteration of their daily routine and longer travelling distances as indicated in Fig. 3. Some even describe it as a major health risk, in that, when an emergency occurs at night which requires the need to convey the sick person to the hospital, there would be great difficulty which might be fatal. Our transportation sector generally lacks the structures to satisfy non- vehicle owners.

### 3.7 Services Patronized

Services patronized by the respondents cut across the minor and major repair works i.e. cleaning of vehicle, gear oil/engine oil/break oil/coolant change, replacement of parts, engine overhaul and accident repair. The repair and maintenance services patronised by vehicle owners over the past three months were tabulated in the Table 2.

Table 2: Services Patronised by Respondents

Services	No.
Gear oil/engine oil/break oil change	145
Oil filter change	130
Spark plugs replacement	102
Coolant replenishment/replacement	150
Tuning	20
Break shoe repair	15
Suspension repairs	1
Engine overhaul	1
Gearbox repair and replacement	5
Cosmetic repairs (scratches, dents, paint shrouding)	25
Accident repair (chassis, mudguard, bumper, bonnet repairs/replacement services)	2
Air-conditioning	32
Error codes	78
Electronic diagnostic and repair	92
Tyre pressure	150
Cleaning of vehicle	150

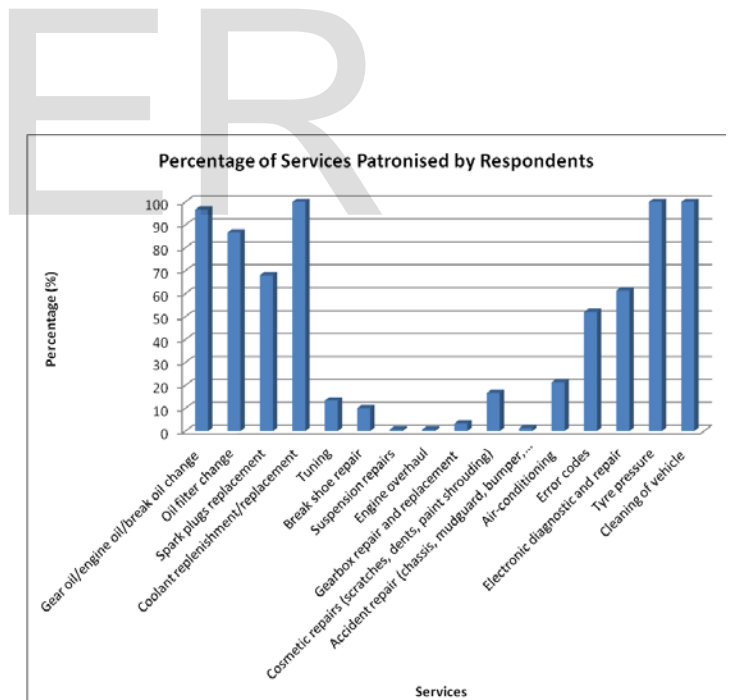


Fig. 4 Percentage of Service Patronised by Respondents Source: Field Data, 2016

## 4 CONCLUSION

Majority of the respondents i.e. 97.3% expressed their willingness to patronize a functioning well equipped auto workshop at Takoradi Polytechnic. With some of the reasons being proximity, assured quality and affordability of services. It has been established that a well maintained functioning vehicle has a correlation with productivity, socio-cultural well being of the owners and their finances.

Establishing an automobile workshop would improve the productivity and competencies of the mechanics and the students as well as raise the income generating capacities of the workers and the Institutions. Over the period, the subventions of the Government of Ghana to the tertiary institutions keep declining. This requires the tertiary institutions to undertake activities that would enable them to fund their programmes.

The challenge of faulty/ ill repaired or maintained vehicles leading to accidents and increased cost would be curtailed.

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