UNIVERSITY OF EDUCATION, WINNEBA

COLLEGE OF TECHNOLOGY EDUCATION

KUMASI

AN ASSESSMENT OF THE CAPABILITIES OF SMALL SCALE AUTOMOTIVE WORKSHOPS IN HO TO SERVICE NEW VEHICLE MODELS

MARTIN CHAMPION JOE DEI

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MARTIN CHAMPION JOE DEI

A DISSERTATION IN THE DEPARTMENT OF MECHANICAL TECHNOLOGY EDUCATION, FACULTY OF TECHNICAL EDUCATION, SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES, UNIVERSITY OF EDUCATION, WINNEBA IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR AWARD OF THE MASTER OF TECHNOLOGY (MECHANICAL TECHNOLOGY EDUCATION) DEGREE.

AUGUST, 2013

DECLARATION

STUDENT'S DECLARATION

I, MARTIN CHAMPION JOE DEI declare that this Dissertation, with the exception of quotations and references contained in published works which have all been identified and dully acknowledged, is entirely my own original work, and it has not been submitted either in part or whole, for another degree elsewhere.

SIGNATURE: …….

DATE: ……..

SUPERVISOR'S DECLARATION

I hereby declare that the preparation and presentation of this work was supervised in accordance with the guidelines for supervision of Dissertation as laid down by the University of Education, Winneba.

NAME OF SUPERVISOR: Prof. Nicholas Kyei-Baffour

SIGNATURE: ……

DATE: ……

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Once again I say thank you, "Akpe kakaka!"

DEDICATION

This work is dedicated to my dear wife Fransisca Kafui Dei (Mrs.), my children: Jerry Raymond Elorm, Nesther Yayra, Linda Emefa, Bismark Sefakor, Seraphim Kekeli and my granddaughter, Annabel Bernadette Dzifa Amuzu, for their love, encouragement and helpfulness as well as their moral and spiritual support, and also to the memory of my beloved parents, Nelson Gabriel Kofi Kumitse and Philomena Adzoa Kloyo.

TABLE OF CONTENTS

CONTENT ***PAGE***

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

The automobile industry is changing very fast with newer models being completely different from traditional vehicles. Thus skills acquired in repairing older vehicles might not be relevant for these newer models. This has the potential of making some artisans redundant and can be reversed with training of artisans on vehicle diagnostic kits. Therefore the main aim of this research was to assess small scale automotive workshops in Ho to ascertain their capabilities to service and carry out maintenance work on new model vehicles. The study also sought to know the influence of both formal and informal institutions on these workshops. The research design used was the descriptive survey type. A sample size of 98 was used and the sampling techniques employed were: representative sampling, purposive sampling and snowball methods. Five research questions were used to guide the study and the instruments used to collect data were observation, unstructured interview and questionnaire. The data was analysed by the use of frequency tables and in some cases, the tables were supported with Pie Charts for better understanding. The study revealed that the capabilities of the workshops under study to service and carry out maintenance work on new model vehicles were below expectation.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Chapter highlights on the fol1owing:

- Background to the study,
- Statement of the problem,
- Purpose of the study,
- Research questions1,
- Significance of the study,
- Limitations and
- Scope of the study.

In today's world of sophisticated automotive electronics where microcomputers, introduced in 1971 incorporating On-Board Diagnostic (OBD) equipment and systems are used, it is becoming increasingly obvious that it is the key to meeting governments exhaust emission and fuel economy demands while providing car buyers with cars that perform well. In order to minimize the number of defects, or even to completely avoid them, a vehicle requires regular checks. In case of an inevitable defect, a clear and directed diagnosis is required and has to be followed by a prompt, reliable, and inexpensive repair. Therefore appropriate diagnostic systems are being developed considering the following targets: simplification of maintenance, fault indication in time, guidelines for the driver in case of a defect, and safer and faster repairs with the help of a

specific fault indication. Therefore the worldwide new legal proposals and governmental reu1ations e.g. California Air Resources Board (CARB), On Board Diagnostics II (OBDII), USA Environmental Protection Agency (EPA) and European On-Board Diagnostics (EOBD) are forcing manufacturers and subcontractors to seek more profitable, effective and convincing diagnosis of vehicles (Jurgen, 1999).

The rapid and constant development of technologies going on in the automotive industry requires Trade Associations to build the capacity of the human resource of small scale automotive workshops in carrying out effective diagnostics and maintenance or repair work on new vehicle models which will in effect help in reducing the rate of accidents which occur on the road, causing greater damage to lives, property and the environment.

According to the National Board for Small Scale Industries (NBSSI) (1998) it is undisputable fact that in the history of the socio-economic development of Ghana, the informal sector stands out as one of the most neglected areas by successive governments in terms of financial aid and skill training support of which the automotive sector is not an exception. There is hardly any comprehensive and reliable data on the informal sector in Ghana, but few of them, provided evidence of lack of support and attention from government.

Successive governments from post-independence Ghana have in diverse ways sought to make Ghanaian citizens better educated and in addition, enjoy better socio-economic conditions. Accordingly, the government in 1983 sought to encourage the establishment of self-managed enterprises by individuals and also took steps to sustain the move by establishing the Ghana Enterprise Development Commission (GEDC). This commission was to cater for the financial needs of the limited number of small scale industries by mobilizing funds for them. This action

by the government to encourage citizens to go into small scale industries was successful to some extent. These are 130,000 small scale industries in Ghana (World Bank, 1987).

Despite this positive sign in self-managed small scale enterprises, United Nations Development Programme (UNDP) (1980) revealed that Ghana was not faring well in some socio-economic areas and among the problems are:

- Less private sector participation in the country's economic growth and
- High graduate/secondary school leavers7 unemployment.

It was in similar state of affairs that the 1983 Economic Recovery Programme (ERP) was brought into being. This programme brought into existence joint developmental activities by the government of Ghana, the World Bank and the International Monetary Fund (IMF). The development programmes were in series and their implementations were in phases. Notable among the ERP, for the sake of this study were the:

- 1987 New Educational Reform (NER) and
- The National Development and Utilization Programme.

The structural adjustment programme when integrated was to link Technical and Vocational education and private sector participation in the economic growth of the nation. For it was the aim of the ERP to effect7 structural adjustment programme which in specific term were:

- Promoting Science and Technology Development
- Ensuring private sector development (giving rise to small scale business entrepreneurs).

Accordingly, the 1987 New Educational Reform (NER) was introduced with the focus on development and adaptation of scientific and technological skills to aid Ghanaians to provide for their own resource development by:

- Changing the structure of the educational system
- Increasing access to education
- Improving content and relevance of education
- Making education financing efficient and effective and
- Expanding teacher training programmes.

Stressing on the content improvement and relevance of education, a new curriculum was produced for the pre-tertiary educational system. The curriculum focused among other areas the acquisition of technological skills. It was in this direction that vocational and technical education were introduced at the Junior Secondary Schools (currently Junior High Schools) level, and new Community Secondary Technical (now Senior High Technical) and Technical Schools were established throughout the country.

It was the expectation of the government that by introducing vocational and technical skills at the basic school level, pupils/students would be introduced to the acquisition of marketable skills which could eventually lead them to be self employed either through formal or informal further training. The UNDP (1986) stated that, interestingly in-between NER and the signing of the UNDP.

The UNDP/Government venture was to support National Capacity Development with emphasis on micro-small and medium enterprises in the sub-sectors of non- traditional exports, tourism,

construction through science and technology, commercialization and income generation employment opportunities as well as training for productivity (Dudornoo, 1999).

In line with these aims, small scale industry facilitators and implementers like the National Board for Small Sale Industries (NBSSI), EMPRETECH Ghana Foundation, Ghana Export Promotion Council and others were brought into the picture and were mandated to carry the duties outlined among their functions such as:

- Create a conducive platform for small scale enterprise development.
- Provide training
- Provide financial assistance and
- Offer business advisory services and transactional linkages.

According to the 1991/92 Ghana Living Standards Survey (GLSS), the formal sector provided only about 20% employment opportunities, while the informal sector absorbed the remaining 80%. The training of the manpower requirements for the formal sector which provided 20% employment opportunities, accounted for 35.12% of governments total annual recurrent budget in 1987 and 40.7% in1994. Formal training takes place in government and private institutions at considerable costs to government.

With respect to training and development of skills in the informal sector, however no serious efforts have been made by government. The sector depends virtually on informal apprenticeship schemes for skills training. According to a World Bank study (1990) master craftsman provides at least 90% of all trainings in Ghana, the cost of which is borne by the individual trainee or his parents/guardians. The Ghana living standard survey (GLSS) 1991/92 has shown that about 25.7% of all employed workers (skilled and unskilled) had participated in one form of

apprenticeship training or the other. The Job and Skills Program for Africa (JASPA) in 1989 also stated that, 38.3% of the urban labour force was employed in the urban informal sector excluding those involved in the formal sector. On part- time basis, the same report estimated that employment in the urban informal sector was growing at about 5.6 % per annum. The JASPA report also estimated that the informal sector in Ghana was contributing about 22% of GDP.

Despite the crucial role that the urban informal sector played employment generation and contribution to GDP, virtually no training schemes existed on a sustainable basis for upgrading the skills of those working in the sector, beyond the uncoordinated apprentices system. Given the growing importance to training in the informal sector and its contribution to the economy of Ghana, it is strange that this type of training has never received support from the existing formal skills training establishment. This situation amply demonstrates the neglect of the informal sector.

The cumulative effects of the neglect of the informal sector have been low productivity, weak productive base, backward technology, low incomes and savings, low investment capital, poor managerial skills, low levels of skills, unemployment and under-employment.

The Government of Ghana is not unaware of the situation in the informal sector. In fact, in 1991, the then Provisional National Defense Council (PNDC) secretary for finance presented a proposal entitled, “Vocational Skills and Informal Sector Support Project,” to the World Bank for funding.

The proposal identified the traditional informal apprenticeship system as an effective and market driven system by which craftsmen and entrepreneurs acquire skills. It further pointed out that the entrepreneurs in the informal sector place more premiums on apprenticeship and they consider

skills transmission to their apprentices as an integral part of their business. The proposal, however, expressed dissatisfaction about the lack of opportunity for sustainable skills upgrading among local artisans and craftsmen in the face of rapid technological advances. It stated that, over 95% of the skills training in Ghana is done through the traditional apprenticeship system and advocated that it should be supported.

The proposal involved the following elements:

i. Some selected public institution were to be directed to reduce their enrollment to free facility and staff time for the proposed competency-based training for the informal sector during the normal school hours.
ii. Incentives were to be provided for private institution to guarantee that staff and facilitators will be made available.
iii. To ensure high levels of participation and sustainability, the project was to use the trade associations in the implementation and monitoring of the scheme.
iv. Government was to promote the active involvement of a number of key institutions in project implementation namely, the Planning, Budgeting, Monitoring and Evaluation Division of the Ministry of Education, the Labour Department of the Ministry of Employment and Social Welfare, and the Ghana Statistical Service.
v. Redirection of training to be more in line with labour realities through short competency-based courses.

The Ghana-Vision 2020 document pays considerable attention to the need for training in human development drives of the country. The objectives of training in human development according to Vision 2015 are:

i. To improve the technical proficiency of the Ghanaian labour force through increased opportunities for technical and vocational training, including apprenticeship scheme.
ii. To inculcate awareness of the need for continuous training and retraining of workers in all categories and at all levels.
iii. To improve and expand infrastructure for training.
iv. To increase the provision of training in management and business skills.
v. To strengthen linkages between the training sector and industry.

The Ghana Vision 2015 document also aims at supporting long-term economic strategies through improving the technical proficiency of the Ghanaian workforce. The document strongly emphasized the practical aspects of training and a problem solving orientation with a view to increasing productivity as well as equipping people with the necessary skills for self-employment particularly within rural and informal sectors of the economy.

An overall aim of the Vision 2015 document is the establishment of sustainable training and skills up-grading as integral parts of working life in Ghana. If the laudable objective of Vision 2015 of making Ghana a middle-income country by the year 2015 is to be achieved, then the idea of establishing a bridge between the Ho Polytechnic and the local artisans/entrepreneurs in the Volta Region, through consultancy and training schemes should be supported and extended to all the other Technical, Vocational and Polytechnic institutions in Ghana.

1.2 Statement of the Problem

The desire for greater safety, driving comfort, and environmental compatibility is leading to a rapid increase in electronic control units or computerized systems in upper class, medium-sized

and compact vehicles. Additional functions and their corresponding equipment in today's cars create a bewildering tangle of cables and confusing functional connections. As a result, it has become more and more difficult to diagnose faults in such systems and to resolve them within a reasonable period.

There is also a perception that the frequent road accidents which occur on roads resulting in serious fatalities in which people lose their lives or become incapacitated is imposing an adverse effect on the nation in general and the industrial sector in particular as greater damage is caused to property and the environment. These seems to be partly attributed to the lack of the requisite knowledge and skills of the small scale automotive workshops to carry out servicing and maintenance work on New Model Vehicles in terms of On-and-Off- Board Diagnosing (Jurgen, 1999b).

However, Small Scale Industries are said to be the engine of growth of any nation and on which the nation can launch its industrial revolution. In spite of all these there has been no scientific study to access the activities of small scale automotive workshops in Ho in the Volta Region of Ghana to ascertain their ability to service and carry out maintenance work on new model vehicles and that is what this researcher wants to investigate.

1.3 Purpose of the study

The aim of the study is to ascertain if the small scale automotive workshops in Ho have the capabilities to service and maintain new model vehicles. To do this the researcher did the following:

i. Assess the educational levels of artisans in the small scale automotive workshops in Ho.

ii. Assess the influence of both formal and informal institutions on these industries or workshops.

iii. Assess the attitude of artisans towards safety procedures, which create safe, healthy, effective and efficient conducive atmosphere at work and in the operation environment.

iv. Assess if the Ghana National Association of Garages is providing the needed and necessary managerial support in terms of safe working conditions, education and training activities to the small scale automotive workshops in Ho.

1.4 Research Questions

To do a comprehensive study, the following research questions were posed as a guide to arrive at decisive conclusions.

i. What is the status and staff strength of small scale automotive workshops in Ho?

ii. Do small scale automotive workshops have the necessary technological tools, equipment and machines for their services?

(iii) How did the artisans acquire their skills?

(iv) How do the small scale automotive workshops get materials and spare parts for their work or services?

(v) Do formal and informal organizations or institutions in the Ho Municipality assist/influence small scale automotive workshops?

1.5 Significance of the study

The researcher is of the view that it will be relevant for the development of small scale - automotive workshops in Ho for the following reasons:

i. The findings will become a source of information or reference to future researchers.

ii. It can be used by the Ho Municipal Assembly in its strategic planning for small scale Automotive Workshops and other small scale enterprises.

iii. Non-Governmental Organizations (NGO's) can get access to the report and provide assistance for workshops.

iv. The government can use it to reform the private sector for the development of the national economy.

v. The formal and informal institutions can use it as a guide for helping in the development of automotive workshops in particular and small scale industries in general.

vi. Furthermore, the results of the exercise may also be used as a contribution to Ghanaian and international discussions on the orientation of technical education as an engine for economic development and national prosperity in support of small scale industries.

vii. Finally, the document may also constitute a working platform for possible long term cooperation between the various automotive related workshops, the Ho Polytechnic and other institutions, for the speedy growth of the automotive repair trade in particular and small scale industries in general.

1.6 Limitations

The following factors restricted the researcher to cover only the Ho town-ship:

i. The high number of workshops in the area covered.
ii. Financial problems in terms of ability to pay transportation charges to cover every workshop in the study area.
iii. Lack of cooperation from respondents was a serious challenge to the researcher.
iv. The total number of persons earmarked became smaller than anticipated.
v. The work schedule of the researcher prevented him from meeting some of the respondents at the first visit and could affect the results.
vi. The short time limit for the research work.

1.7 Scope of the Study

The study was restricted to Automotive/Fitting Workshops in the Ho Township in the Volta Region of Ghana. It focused on the owners/operators and the artisans in these small scale workshops.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The study is aimed at exploring the trends, activities and objectives of small scale automotive workshops. This will assist in understanding their nature, economic problems, manpower and training needs which are militating against their growth. It will also determine their impact on the Road Transport Sector in terms of their services so that measures could be put in place by way of consultancies and technical support services which will enhance their maintenance and servicing ability and development.

The chapter has been divided into:

- The development of formal and informal technical/vocational education,
- Characteristics and the role of small scale enterprises/industries and
- The development of small scale industries and garages in the Volta Region.

2.2 Development of Informal and Formal Technical/Vocational Education

According to Antwi (1995a) developments in education seem to have been mainly linked to the evaluation of the formal sectors of the economy, whereas the informal sector has been mainly left to itself. Every community or society has its own distinctive ways of educating its members. The fact that some societies in the olden days did not develop the art of literacy (reading and writing) does not mean that no education went on in such societies. The two sectors are, however, c complementary and formal schooling may affect developments in the informal sector.

2.2.1 Informal Education

According to Antwi (1995b), research has also shown that indigenous Ghanaian education was highly informal and this is still the case in most of the small scale automotive workshops garages with little or no modification. With the exception of very few cases, there were no formal institutions with time-structured curriculum for the people to go through. Instead, educating the youth took place at wherever the people live, thus the method of teaching and training was direct. That is, the young girl or boy has to learn the various daily activities from the parents or any other responsible adult. Bartels (1983) called this type of education "home education". He said, in all, there were four important methods which were employed in this "home education" phenomenon. These were:

- Observation
- Limitation
- Conversation and
- Participation.

The informal sector began to receive public attention from the early 1970s, and there are at present about 50% of entrepreneurs in the sector. Eshun (1999a) stated that, the informal sector has the following important features:

i. It includes a wide range of income-generating activities
ii. It has a low outlay capital and low capital labour ratio
iii. The average level of education of the workers is improving
iv. It encompasses mostly self-employed entrepreneurs, helpers or apprentices
v. The enterprise in this sector has a high mortality rate

vi. Many of them depend on the formal sector

vii. The enterprise has little access to credit, raw materials, spare parts, customers and new markets and

viii. Most of the training of the workers is acquired on the job and through private training institutions.

According to Amofa (1999), the most common method of acquiring skills in the informal sector is through informal apprenticeship. No initial experience is required and skill formation takes place through exposure of the apprentice to the working situation. No fees are charged, but the apprentice must be willing to complete the training programme. The system thus became one of the cheapest ways of acquiring skills, with the government incurring no expenditure whatsoever.

Throwing more light on apprenticeship, Eshun (1999b) argued that, apprentices contribute significantly to the informal sector, but the owner of the enterprise is interested in the apprenticeship only because the output of his business can be increased. On-the-job training is thus the only possibility that the apprentice has, and formal training is, in fact, inaccessible to them for the following reasons:

i. The level of education is usually too low to allow them to follow modern courses

ii. Formal training is usually out of reach to informal workers who earn very low wages

iii. Time spent on training means income lost since workers in the informal sector are paid by piece rates

iv. The informal sector may give workers time off to follow courses and

v. Finally, employers are afraid that if their apprentices acquire new skills, they will ask for wage increases or may even seek better paid jobs in the formal sector.

2.2.2 Formal Education

Annoh (1997a) indicated that, the introduction of formal Western education in modern Ghana was closely tied to the coming of the European merchants to the Ghanaian coast, from the middle of the fifteenth-century. The first of these merchants were the Portuguese, who even though were primarily interested in trading activities, felt the need to provide formal education to the indigenous people to serve as a catalyst for smooth commercial activities and also the desire to spread Christianity and Western Culture in modern Ghana motivated their coming.

Annoh (1997a) further stated that, apart from the Portuguese, other Europeans followed suit and whose interest in providing education in the country was equally high. There were the Dutch, Danes, and the British. Because these merchants lived in the castles scattered along the coast, the schools established were all confined to these places and therefore were commonly referred to as the "Castle Schools".

In 1908, the government of Governor Rodger appointed a committee to review matters concerning education. Governor Rodger's educational committee recommended technical education and in 1909, he opened the Accra Government Technical School which was later moved to Takoradi in 1939. The Phelp-Stokes Commission in 1920 criticized the educational system in the country as bookish and out of touch with the lives of the people and therefore gave recognition to the need for technical education. In 1931, Achimota Engineering School was opened and fourteen (14) students obtained BSc degrees and became the country's first graduate engineers, some of whom became head of government and locomotive department of Ghana Railways. Just after that, part-time courses in drawing design, building construction and workshop processes were instituted mainly for the employees of government departments in

1932. Trade schools were opened at Abokobi, Aburi and Akropong and a fitters (Auto Mechanics) shop was opened in 1860 at Christiansburg, the headquarters of the trade schools (Annoh, 1999a).

In 1952, government's efforts in technical education was intensified due to information about the technological achievement of other countries and therefore established the College of Technology (U.S.T) in Kumasi to offer courses in Agriculture and Architecture and also to train a diversity of personnel for the economic, technological, educational and social development of the country. The government during 1922 opened trade schools at Yendi, Mampong – Ashanti, Kibi and Asuansi where students were given vocational training in Masonry, Carpentry, Metal work and wood work. In the same year, technical classes were attached to the Ghana Railway where bonded engineering apprentices learned mathematics, engineering and workshop practice (Annoh, 1999b).

The Missionaries made a tremendous contribution to technical education in the country. In the 1880's, Rev. Freeman, a Wesleyan Missionary set up a small industrial school for the teaching of carpentry, blacksmithing and printing. Rev. Metcalfe Simter of the Basel Mission noted in 1996 that the Wesleyans neglected industrial training. The Basel Mission on the other hand, saw the importance of industrial training and therefore started a 3year course in Accra to train pupils in joinery, carpentry and iron works.

The Roman Catholic Mission also did not lose sight of technical education and in the 1980s, they set up an agricultural and book-binding centre at Saltpong. They also started a printing and carpentry centre at Cape Coast where young boys were taught technical drawing and industrial subjects (Annoh, 1999c).

McWilliams (1971) also stated that, the Seventh-Day Adventists (S.D.A) Mission was first introduced to modern Ghana through literature (tracts and brochures) with its first missionaries Edward L. Stanford and Kang Rudolf arriving at the coastal town of Apam on 22nd February, 1894. The mission, right from the outset believed in a holistic education. It held that education must necessarily be aimed at equipping its beneficiaries with functional and skilful knowledge for the promotion of church activities and particularly for rapid socio-economic development. Consequently, in all the schools established, religion and moral training were particularly stressed. In addition, practical Agriculture, craft and vocational industries as well as liberal education were highly promoted.

The main objective of technical education programme is therefore to develop the competence of students at all levels, with much emphasis at the basic educational level to facilitate the provision of middle level manpower needs to support enterprises and industries as defined in the Free Compulsory Universal Basic Education (FCUBE) document (Eshun, 1999c).

2.3 Characteristics and the Role of Small Scale Enterprises/Industries

Attempts have been made by different individual bodies in different countries to bring out a definite definition of Small Scale Enterprise or Industry (SSE/SSI). Yet no specific definition has been achieved. According to Neeham and Dransfied (1990), there are different ways of defining a small scale enterprise or business. In their explanation, they advanced the argument that small scale enterprise may be described as small if it employs less than a certain number of people, have its sales value less than a certain figure and so on. Checkley (1984) gave out some of the indicators as follows:

i. A small firm is one that has relatively small share of its market

ii. A small firm is managed by its owners in a personalized way

iii. Small firms are independent and do not form part of a large enterprise which can provide a financial umbrella and

iv. Owners/managers are free from outside control in terms of principal decision taking.

Looking at it from the Western perspective, however, we can define a small scale enterprise according to Listcheron and Cunningham (1991) as:

i. A business having a limited of 500 employees in Germany, while in Belgium it is up to 100 employees.

ii. On the other hand, the European Union defines Small Scale Enterprise (SSE) as companies with fewer than 50 employees.

iii. In United States, where small business is defined by the number of employees, it often refers to those with less than 100 employees. As of 2005, Germany adopted the European Commission's definition of small scale business as an enterprise with fewer than 10 employees and often classified as SOHO (Small Office/Home Office).

iv. Referring to Joseph and Ampadu (1999a) in Ghana, the Bank of Ghana under funds for Small and Medium Enterprises Development defines small enterprise as firms with assets (excluding land) of two thousand five hundred Ghana cedis (GH¢2500) and five hundred Ghana cedis (GH¢500) in constant prices respectively.

v. Also, the Ghana Statistical Service defines SSE as a firm with less than ten (10) employees.

vi. The National Board for Small Scale Industries (NBSSI) defines a SSE as one with not more than nine (9) employees, has plant and machinery (excluding vehicle, building and land) not exceeding one thousand Ghana Cedis (GH¢1,000) in value.

vii. On the other hand, an amount of one thousand Ghana cedis (GH¢1,000) upper limit for plant and machinery is given by the Ghana Enterprise Development Commission (GEDC) (Joseph and Ampadu, 1999b).

In conclusion therefore SSEs are classified according to the number of employees and value of capital assets of the enterprise or industry (Eshun, 1999d).

2.3.1 Characteristics of Small Scale Industries (SSI) / Small Scale Enterprises (SSE)

According to Adzraku (2008), the mode of operation of Small Scale Industries (SSI) has peculiar characteristics that differentiate them from the medium or large enterprises. These characteristics include:

i. Small Scale Enterprises (SSE/SSI) are established with fewer than nine (9) workers. They form a significant component of the industrial sector of the Ghanaian economy. They account for more than 65% of the industrial employment (that was in 2008, but current research shows that they occupy about 80% of industrial employment).

Those in the Automotive Sector and its related industries with activities including vehicle maintenance and repairs, blacksmithing, welding and fabrication, auto body works, spraying, upholstery and light engineering works do small scale industrial activities. There are other SSIs who are generally engaged in light consumer goods, primarily related to clothing, furniture, food and beverages. He further gave the following:

ii. In Ghana, most of the small scale industrial firms were located in rural areas. This trend is changing.

iii. The majority of the firms are very small. They are one-man firm employing less than five (5) people.

iv. Almost all these small firms are privately owned and organized by some proprietorship.

v. Proprietors and family workers form the largest components of the labour force. Apprenticeship labour is of prime importance. Hired labour forms the smallest segment of the small enterprise employment in most developing countries. These workers are found in more modern types of enterprises operating on a relatively large scale, e.g. brick and tiles, baking, repairs and metal working.

vi. The amount of capital is modest in their initial capital stock. Fixed assets (building and equipment) form the largest components of the capital stock, equipment, tools, machine and furniture account for the largest share. Considering the per-capital income of most developing countries, capital entry barrier is significant.

vii. Most of the funds for establishing and expanding the firm come from personal saving of relatives. The extent to which the formal credit institutions reach these firms is limited.

viii. In economic terms, the SSIs have a relatively small share of the relevant market. The owners run them in a rather personalized manner than by means of formalized structures. It is dependent with the owner entrepreneur free more or less to take strategic decisions.

2.3.2 The Role/Importance of SSE/SSI

i. According to the World Bank Discussion Paper “Private Enterprise in Africa”, Mardson and Belton (1979), said an encouragement of small scale enterprise in both rural and

urban areas should be a high priority in Africa not only for the private sector but also as recruitment and training process for future enterprises.

ii. The role of SSE in the United States, United Kingdom and other developed countries is tremendous. According to Amanee (1991), small business in US employed 55% of all business innovations and made up of 40% of the gross national product (GNP). In UK, SSE accounted for 21% of the nations net output and 18% of employment in 1972). Again, more than 80% creative inventions came from small organizations or individuals.

iii. By supporting the development of SSEs, they will serve as a strong base for industrial development in the West African sub-region.

iv. Indigenous base industrialization process could be a means of mobilizing capital towards productive ventures, due to the low capital requirement. Individuals can set up their own businesses from their own resources thereby serving as a means of mobilizing funds for economic activities.

v. They have superior employment generating capacity and potentials as compared with large enterprises.

vi. They have added advantage of being serviceable and therefore being easily adaptable to changing market opportunities and conditions.

vii. They generally require limited capital and can easily combine simple and advanced technology as may be appropriate.

viii. Small business activities also offer the opportunity to decentralize large commercial and industrial activities.

ix. They possess the potential for mobilizing talent, entrepreneurial talent and resources.

x. They can be used to strengthen political power bases. They can make a significant contribution to the technology base of a country.

xi. SSEs make immense contributions to economic development in West Africa, though they have been given very little assistance. They provide the bulk of people employed in the manufacturing sector in developing countries. In Ghana, about 70% of the manufacturing employment is provided by SSI. (Mardson and Belton, 1979).

xii. A recent nationwide survey of all industrial establishments by the statistical services (2010), revealed that small scale manufacturing enterprises constituted about 7% and employs 46% of the total industrial labour force.

If attention is given to the development of the SSE, the following advantages should be expected:

- Strong technical base for growth
- Possibility of stimulating indigenous entrepreneurship
- Initial capital easier to mobilize
- Resource intensive resulting in job opportunities
- Use of simple technology
- Adequate opportunities for self employment or entrepreneurship and
- Equitable distribution of income and wealth.

2.3.3 The Mission /Role of Ghana National Association of Garages (GNAG)

GNAG is an informal sector body which controls the activities of all small scale automobile workshops/fitting shops and serves as an umbrella body for them. It includes the workshops which deal with mechanics and various artisans in the automotive services sector such as fitters, auto electricians, welders, vehicle body workers, vulcanizers, upholstery, spraying and the like. In general, it involves services rendered in the form of maintenance, fabrication, repairs and interior decoration in the Automotive Industry. Some of the objectives of this association are:

- To bring together all garages, mechanics and various artisans in the automotive services industry in Ghana into a central organization.
- To provide a standard assessment of the quality of services provided by the members of garages, mechanics and various artisans to the public with a view to improving upon the standard of their work.
- To provide a forum for the exchange of intermediate technology between members.
- To advice government on the maintenance of vehicles and protection of national members.
- To assist members and employees in times of difficulty.
- To sponsor training, research and facilities for the improvement of the members.
- To print and publish newsletters and leaflets that the Association may think desirable for the promotion of its objectives.
- To source for loans or raise funds in such manner as the Association may deem fit.
- To subscribe to any local or other charities, and grant donations for any public purpose.
- To assist members in the procurement of tools and equipment, (GNAG, 2009).

2.4 Development of Small Scale Industries and Garages in the Volta Region and Ashianti Region

History has shown that, most of what is known as the Volta Region today was before 1914 part of Togo, a German Colony from 1884-1914, a period of 30 years. Togo under the Germans was administered as a model Colony. In economic terms, this meant that the colony was administered without any development fund coming from Germany. Accordingly, economic activities to harness the development potentials of the colony were intense, (Sebald, 1914a).

Agricultural production was seriously pursued, even under rather harsh labour and unfriendly social conditions. Large plantations were established for cash crops such as cocoa, rubber, oil palm, coconut, cotton and coffee. Vocational training was meticulously imparted in all varieties of trade to produce quality artisans and qualified work force.

The automotive trade was one of the most prominent among the lot that was introduced and practiced in training the youth. This various trainings, coupled with the acquired sense of consciousness, dedicated work of the people, forms the legacy of German colonization for which the Region is known today.

Furthermore, Sebald (1914b) reported that these remarks should not be construed as a eulogy to German colonization. On the other hand, these facts concerning the existence of large skills of the labour force and the intensity of economic activity in the region at that time staring us in the face are even testified to by our grandfathers who witnessed these developments.

According to the Volta Regional Administration Seminar (VRAS) (1983) report the small scale indigenous craft ventures were the only viable economic activities until the Automotive Trade came into the Region in the early 1920s. It was brought in by the natives of the Region who

migrated to the then Gold Coast. These migrants individually engaged themselves in the Automotive Trade and some other light engineering works as apprentices. They then moved back home to establish their personal workshops to train the youth.

Since it is a foreign trade, the youths take much delight in it and through apprenticeship; it has spread all over the Region. However, it has lacked the needed development since most of the workshops have not grown up to the medium scale level up to today.

Moving away from the Volta Region, Boadu (2013) reported of how fast the Suame Magazine Industrial Area in Kumasi in the Ashianti Region of Ghana was developing. He said that, the local artisanal engineering industry in the country (Ghana) was set to witness a major revolution in modern automobile technology. He said, this was because of a historic collaboration between the Suame Magazine Industrial development Organisation (SMIDO in Kumasi) and the Kwame Nkruma University of Science and Technology (KNUST) to establish a unit under the College of Engineering of KNUST for the research, training and certification of artisan engineers in modern automobile engineering to support the Suame Magazine Automatics Technical Institute (SMATI) Project. The report further claimed that, SMATI was a model artisan technical institutional centre of excellence initiated by SMIDO to ensure the establishment and accreditation of a first-of-its-kind institutional training centre for skills formation and upgrading for artisan engineers in Ghana and the West African sub-region. In conclusion, the report stated that:

> The historic partnership marked a significant milestone in the quest to arrest the imminent collapse of the artisanal engineering industry due to the conflict between current vehicular repair technologies which is largely computer-based, and the existing

manual vehicular repair skills which is phasing out with new models of vehicles replacing the old models (Boadu, 2013, p.80).

For that matter, there was the need to assess Automotive workshops in Ho also, to ascertain if they have artisans who acquired the skills and knowledge to understand and carry out effective and efficient fault diagnosis and repair work on New Mode Vehicles as claimed by Jurgen (1999b), some of which have been given under reasons for diagnostics in vehicles.

2.4.1 Reasons for Diagnostics in Vehicles

Existing Diagnostic Problems:

Early diagnostic information was related only to single components and control units. In case of a defective comprehensive system, every unit, component, sensor and connecting cable of the system had to be tested and controlled. This was a very time consuming and expensive process.

- Because of the single component and control unit checks, it was impossible to analyze all the additional data correlated with a particular defect.
- In the case of a defect in single sensors or units, the car was often inoperable. Taking into consideration all available information about the vehicle, it is possible to use alternate parameters and procedures in order to achieve at least a so-called/imp-home function and sometimes continue the use of the vehicle under only slightly limited operating conditions.

- Usually there was only a global error display with an often ambiguous warning light available for the driver. Drivers desired more detailed information and especially guidelines for what procedures should be followed.
- The multitude of adapter cable plugs, diagnostic equipment, and communication interfaces in the workshop has become so complex that the effectiveness decreased dramatically, with the repair costs increasing disproportionally.

2.4.2 Diagnostic Tasks in Vehicle

In order to minimize the number of defects or even to completely avoid them, a vehicle requires regular checks. In case of an inevitable defect, a clear and directed diagnosis is required and has to be followed by a prompt, reliable and inexpensive repair. Therefore appropriate diagnostic systems are being developed considering the following targets: simplification of maintenance, fault indication in time, guidelines for the driver in case of a defect, and safer and faster repairs with the help of a specific fault indication.

Having knowledge of the functional interrelationships and access to all essential data, a picture of the defect can be created with the help of individual pieces of information. The driver and the workshop can then be provided with appropriate instructions. In this context, on-board expert systems are being considered. For an effective and successful diagnosis today and in the future the following tasks and targets can be defined.

2.4.3 Fault Storage with Boundary Conditions

A very important aspect of modern diagnosis is a clear and reliable analysis of the respective fault. During the self-diagnosis, it is absolutely necessary to store not only the respective fault information but also all relevant marginal parameters in the control unit, e.g. ambient

temperature, velocity, engine speed, engine knock, and so on. The additional data can be stored when a defect occurs as well as during specified intervals around the moment of a defect. Such additional data is called “freeze frame data”.

2.4.4 Fault Localization

Mechanics must be able to locate a defective control unit quickly and then determine which component of that control unit is at fault so that it can be replaced.

2.4.5 Data Correlation Recognition of Imminent Faults

A large amount of data useful for the analysis of a vehicle is now available and even more will be available in the future. This data will have to be evaluated and compared with the help of modern processing techniques including fuzzy logic, neural networks, autodidactic systems and expert systems. These techniques will not only enable the diagnosis of the actual condition of the vehicle but will also determine future maintenance needs. As a result, the reliability and availability of a vehicle will be increased and the possible consequences of a defect to a minimum. The driver can also be forewarned about imminent problems and can then take appropriate steps before starting on a trip.

2.4.6 Parameter Substitution

The breakdown of a sensor in modern diagnostic procedures is not necessarily followed by a lack of the respective information. After having diagnosed a fault, the diagnostic computer with the aid of the available information is often able to compute an auxiliary parameter to replace the original one. As a result, either a limp-home condition is possible or else the nominal function can be assured but under lightly limited conditions. Simple example for such a calculated

parameter are vehicle speed (considering the gear and the synchronous speed, or the antilock braking information, or data of the navigation system), motor temperature (considering the outside temperature and the operation time), and the amount of remaining fuel (considering the last actual fuel content and the calculated consumption).

2.4.7 Providing Guidelines

As mentioned earlier, a diagnostic system has to provide clear information to the driver in case of defect. A global warming indication is not sufficient; the driver needs to learn the extent of the defect and its consequences by appropriate text, graphics, or synthetic voice. In addition, the driver needs to be told the steps that have to be taken (e.g. “refill cooling water”, “minimum speed to the next service station, risk of engine breakdown”, “stop, brake system out of order”).

2.4.8 Logbook Function

The control unit or the diagnostic computer of the vehicle is supposed to store every repair that has been carried out in the format of a logbook. It should contain the time and name of the workshop, every exchanged and newly installed element, every inspection carried out, and so forth (Jurgen, 1999c).

The Electronic or Microcomputers on New Model vehicles control all the various units and systems such as the Fuel (Petrol) Injection, Air condition, Braking, Automatic Transmission, Cooling and all other systems on the modern vehicle through actuators and sensors of which the artisan or mechanic should be aware of.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter discusses methods employed by the researcher in gathering the relevant information for the study. The main areas of consideration are the research design, population, sample of respondents, sampling method/technique, instruments employed (observations, unstructured interviews, questionnaire and its administration and scoring), validity and reliability of research instruments and data analysis.

3.1 Research Design

The research design used for the study was descriptive survey. This design method involves the collection of data accurately and objectively to describe an existing phenomena.

Studies under this design are employed to obtain a picture of the present condition of a particular phenomenon. Agygedu, et al (2010) described descriptive study as that which "seeks to gather information so that a description of what is going on can be made". Descriptive survey also lends itself to the use of questionnaire to gather information for a study.

3.2 Population

The population for this research work consisted of about 314 respondents, comprising artisans in the automotive related workshops and personnel of support/financial institutions in the Ho Municipality.

3.3 Sample of Respondents

The sample for the study consisted of 100 artisan/master craftsmen out of which 15 are females and 85 males. The sample also had 10 respondents being managers of financial institutions in the study area which is the Ho Township.

Table 3.1 shows the population of artisans/respondents who were to be served with a questionnaire in each of the communities/suburbs within the study area.

(LEGEND: HB = HO BANKOE, HD = HO DOME, HH= HO HLIHA, HA$H = HO AHOE AND HO HEVE, TL = TOTAL

Table 3.1 Distribution of Questionnaires

No. Respondents	HB	HD	HH	HA$H	Total
Vehicle Fitters/Mechanics	11	03	03	06	23
Motor Bike Fitters	02	02	02	02	08
Lawn-Mower & Small Engine Fitters	02	01	04	03	10
Auto Electricians	03	02	02	02	09
Welders	01	03	03	03	10
Blacksmiths & Fabricators	01	01	03	02	07
Auto Body Workers	02	01	01	02	06
Auto Body Sprayers	01	01	01	02	05
Vulcanizers	01	01	01	03	06
Upholstery & Interior Decorators	03	01	00	01	05
Auto Air-Condition Mechanics	03	00	00	02	05

Transport service operators	02	01	01	02	06
Total	**32**	**17**	**21**	**30**	**100**

3.4 Sampling Method/Technique

The techniques which the researcher used in sampling the population were representative sampling, purposive sampling and snowball sampling methods.

The representative method of sampling was used due to the numerous automotive related workshops that exist in the study area. Representative sampling enabled the researcher to get respondents from the numerous workshops to have a fair representation of people in the sample. This method ensured that the sample cut cross the various automobile workshops.

For purposive sampling, the need to select samples that were representative of the population (the Entrepreneurs/Master Craftsmen/Artisans of Automotive related workshops and financial institutions in the study area and Municipality) called for a purposive sampling of workshops for the study. A purposive sampling was necessary so that the samples that were selected would include specific people to provide relevant and appropriate responses. This method was used to get respondents from the financial institutions.

Furthermore, the snowball sampling was also used due to the vastness of the study area and the large number of workshops in the target areas. This sampling method helped the researcher to easily locate the next qualified workshop in the target areas to be visited since he was directed to the next qualified workshops to be assessed from the first point/place of call, as needed in the use of snowball method.

3.4.1 Instruments Employed

Three different data collection methods were used in collecting data for the study. These are observation, unstructured interview and questionnaire.

The observation method was chosen since observation of "real" life in natural settings gives access to highly valid data. It was also employed, for, it could produce data that was "rich" in meaning and gave access to otherwise "hidden" data since artisans were observed practically on the job.

The researcher through critical observation (Appendix 1) and personal contact with certain groups of people/artisans in the workshops were able to gather enough information to facilitate this study. The researcher also observed how the artisans employed knowledge and skills to improve upon their services. Some of the assessments made through observation were: service/product quality and design, quality of facilities (including structures, tools and equipment, etc), application of knowledge and skills, accessibility to workshop, customer relations and quality standards, record keeping, neatness of workshops and master-apprentice relations.

Unstructured interview method was used to bring the researcher face to face with the respondents. It allowed the people who were interviewed to give out the issues freely and confidently. It also allowed the researcher to get more information as he was able to ask more questions from the answers given by the respondents.

The researcher desired to use unstructured interview to collect data from the Business Advisory Centre (BAC) and National Board for Small Scale Industries (NBSSI), since they were the governmental agencies responsible for providing technical and entrepreneurial skills training.

This interview helped the researcher to know and obtain adequate information about small scale entrepreneurs in the Municipality in general and Ho Township in particular.

Questionnaire was also employed. Since questionnaires have the primary advantage of being administered easily to a good number of people, it was also adopted as a tool for the study.

3.5 Questionnaire Administration

According to Walsh (2001), questionnaires are a deep and efficient way of collecting large amount of data within a relatively short period of time. It is also a relatively reliable method of data collection and ensures a good comparison of respondents' responses. The questionnaire used to collect data for the study was self-designed one by the researcher (Appendix 2 and 3). They were prepared bearing in mind the objective of the study. They were two separate sets of questionnaires. The main one which was administered to local artisans/entrepreneurs/operators consisted of fourty-nine (49) questionnaire items were divided into five sections relating to the research questions.

These sections covered the following: Personal data and status of business, availability of tools and equipment, skills training and acquisition, service or product inputs, influence of trade associations/organizations and culture, and possible assistance to small scale industries. The second set of questionnaires centered on the support institutions (banks, lending agencies, local authorities, and educational/training institutions). The questionnaires were administered personally to the respondents and the responses collected after 45-minute intervals. The 45 minutes given to respondents to respond to the questions made it easier for almost 100% retrieval of the questionnaires.

3.6 Questionnaire Scoring

Questions used were both close-ended and open-ended types. The close-ended type required respondents to select or tick the right response(s) which he/she felt best answered the question from possible alternatives or opinions. The open-ended type required simple answers to the skills training and area of possible assistance.

3.7 Validity and Reliability of Research Instruments

The questionnaire items were structured such that, they could bring to light factors which could effectively and efficiently assess the actual level of capability of small scale automotive workshops in the Ho Township of the Volta Region to service/maintain/repair new car models.

The questionnaires were vetted by the researcher‘s supervisor, after which they would be pre-tested on trial basis using colleagues (teachers) who were also technical teachers and well-versed in the automotive profession and the staff/personnel in the researcher’s University Transport Workshop to determine the validity of the questionnaires. Ambiguous items were sieved out and with the approval of the researcher’s supervisor, the questionnaire were administered.

3.8 Analysis of Data

The collected data were grouped under the sub-headings in which the questionnaire was structured. The researcher adopted the use of tables, charts and graphs in presenting the data collected. The collected data helped the researcher to analyze different opinions of different groups of people.

The number of respondents who gave the responses were converted to percentages and the responses with the highest percentage were considered as the general opinion and view point on the issues raised in the questionnaires.

The outcome of the interview conducted for the research work is also presented separately under the heading “outcomes of interviews”.

CHAPTER FOUR

RESULTS AND DISCUSSIONS OF FINDINGS OF THE STUDY

4.1 Introduction

In this chapter, the results of the study were critically examined based on the information collected by means of observation, interviews and questionnaires on the capabilities of small scale automotive workshops in Ho to service newer vehicle models.

4.2 Responses Received

The study was conducted in the Ho Municipality, the capital town of the Volta Region. The results obtained were based on the outcome of the questionnaires given out to artisans and financial institutions (banks and lending agencies). A total of 49 items from five research question were used. Out of these, 29 items were close-ended (graphic rating scale) and 20 items were structured interview. In all about 100 questionnaires were sent out to the respondents in the selected suburbs of the township or target area. Out of these, 98 questionnaires representing 98% were collected as indicated in Table 4.1

The analysis of results for questionnaires collated from artisans (Appendix B) were represented item by item using frequencies and percentages of the data collated and presented in tables and figures. Those relating to the researchers observations and interviews were presented under a separate heading or fixed into the summary of the various tables where applicable.

Table 4.1: Questionnaires Retrieved from respondents in the various Areas in the Ho Township.

Area	No. Responded
HO BANKOE	33
HO DOME	20
HO HLIHA	22
HO AHOE AND HO HEVE	23
TOTAL	**98**

4.3 Discussion of Findings

The findings of the study are discussed according to the order of the research questions.

4.3.1 Discussion of Research Questions

i. Status of workshop/enterprise/personal data.

Research Question 1:

- What is the status and staff strength of small scale automotive workshops in Ho?

Analysis of results in relation to Research Question 1 was based on items 1.1 to 1.16 of Appendix B item-by-item. Frequencies and percentages of the data are presented in Tables 4.2 to 4.11.

Tables 4.2: Status of Business

Type of Business	Location of Respondent					
	HB	HD	HH	HA&H	TL	%
Sole Proprietorship	26	15	19	20	80	81.6
Partnership	4	4	3	3	14	14.3
Co- operative	2	1	0	0	3	3.1
Limited Liability	1	0	0	0	1	1.0
Total	**33**	**20**	**22**	**23**	**98**	**100.0**

Scoring key: HB = Bankoe; HD = Ho Dome; HH = Ho Hliha; HA & H = Ho Ahoe and Heve.

Referring to Table 4.2, the results showed that there was only a single limited liability company in the study area. However, there were as many as 80 sole proprietorship enterprises making up 81.6% of all the artisans surveyed.

Table 4.3: Level of Education of Artisans/ Master Craftsmen.

Responses and percentages of artisans to Research Question 1 (item 1.3).

	Location of Respondents					
Level of Education	HB	HD	HH	HA&H	TL	%
No Formal Education	4	3	5	6	18	18.4
Primary School	5	2	2	4	13	13.3
Middle School	12	9	8	5	34	34.7
Junior High School	3	1	4	0	8	8.2
Senior High School	1	1	0	4	6	6.1
Technical School	2	2	3	3	10	10.2
Vocational School	1	1	0	1	3	3.1
Commercial School	1	1	0	0	2	2.0
Post "A" / "Sec"	1	0	0	0	1	1.0
Polytechnic	2	0	0	0	2	2.0
University	1	0	0	0	1	1.0
Total	**33**	**20**	**22**	**23**	**98**	**100.0**

With reference to Table 4.3, the educational background of the 98 respondents in the study appear to be very modest, since as many as 73 (74.5%) had only Primary or Middle school/ Junior High School education or have not attended any school at all.

Table 4.4: Operating of Bank Account. Responses and percentages of artisans to Research Question 1 (item 1.4).

Response	Location of respondents					
	HB	HD	HH	HA&H	TL	%
Yes	8	2	3	4	17	17.3
No	25	18	19	19	81	82.7
Total	**33**	**20**	**22**	**23**	**98**	**100.0**

Table 4.4 shows that only 17 out of the 98 artisans representing 17.3% were able to open and operate a bank account for their businesses.

Table 4.5: Application for Loans.

Response	**Location of respondents**					
	HB	HD	HH	HA&H	TL	%
YES	3	2	2	2	9	9.2
No	30	18	20	21	89	90.8
Total	**33**	**20**	**22**	**23**	**98**	**100.0**

According to Table 4.5, only 9 (9.2%) out of 98 artisans had ever applied for a loan and were granted to enable them to purchase the requisite tools and equipment for servicing New Vehicle Models.

Table 4.6: Keeping of Sales Register.

Sales Register	**Location of respondents**					
	HB	HD	HH	HA&H	TL	%
Yes	8	2	2	3	15	15.3
No	25	18	20	20	83	84.7
Total	**33**	**20**	**22**	**23**	**98**	**100.0**

Referring to Table 4.6, 15 respondents representing 15.3% only appeared to keep sales or service register. This indicates clearly that most (84.7%) respondents do not keep sales register.

Table 4.7: Keeping Expenditure Register

Expenditure Register	Location of Respondents					
	HB	HD	HH	HA&H	TL	%
Yes	9	3	3	3	18	18.4
No	24	17	19	20	80	81.6
Total	**33**	**20**	**22**	**23**	**98**	**100.0**

Table 4.7 revealed that 80 (81.6%) respondents in the study area kept no expenditure register just like in Table 4.6 where most (84.7%) of the artisans covered did not operate with a sales or service register. This may be attributed to the low level of education among artisans.

Table 4.8: Insurance Cover for Business.

Insurance Cover	Location of respondents					
	HB	HD	HH	HA&H	TL	%
YES	1	0	0	0	1	1.0
No	32	20	22	23	97	99.0
Total	**33**	**20**	**22**	**23**	**98**	**100.0**

Table 4.9: Other Income Sources for Artisans.

Other Income Sources	Location of Respondents					
	HB	HD	HH	HA&H	TL	%
Yes	7	5	6	6	24	24.5
No	26	15	16	17	74	75.5
Total	**33**	**20**	**22**	**23**	**98**	**100.0**

For insurance cover for their businesses, Table 4.8 indicated that only one (1.0%) of the 98 artisans had the policy. Others (99.0%) claimed they could not afford the payment of the premium regularly, even though about 74 (76%) of the artisans depend solely on their business for survival as shown in Table 4.9.

Table 4.10: Certificate of registration

Registration of Business	**Location of Respondents**					
	HB	**HD**	**HH**	**HA&H**	**TL**	**%**
Yes	28	17	19	19	83	84.7
No	5	3	3	4	15	15.3
Total	**33**	**20**	**22**	**23**	**98**	**100.0**

Table 4.10 shows that, not all the artisans were able to register their business thus registration of business is another thorny issue among artisans. Actually, none of the workshops/businesses were registered with the Registrar General's Department as required by law. This was arguably due to the cumbersome registration procedures and the low level of registration among the artisans. What appeared as registration (15.3%) was in fact, registration done at the Municipal Assembly level, the Internal Revenue Service and with various trade associations for the purpose of collecting local taxes and dues. The cumulative effects of these constraints were low financial inputs, poor financial management and low capital formation and savings.

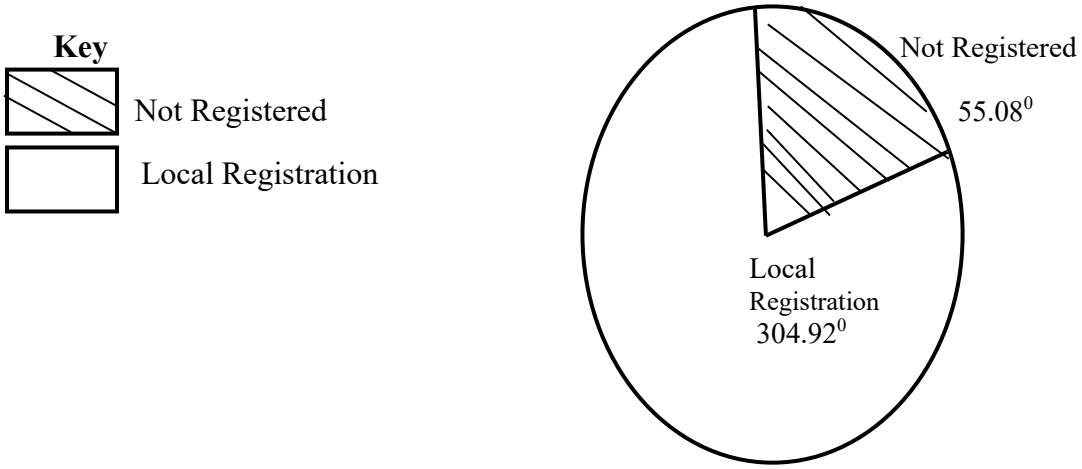

Figure 4.2 Municipal Certified Registrations;

Table 4.11: Start–up Capital and Expansion Financing

Source of Funds	**Location of Respondents**					
	HB	HD	HH	HA&H	TL	%
Personal Savings (PS)	25	15	18	15	73	74.6
Family Assistance (FA)	4	2	3	2	11	11.2
Money Lenders (ML)	1	2	0	2	5	5.1
Government Assistance (GA)	1	1	0	0	2	2.0
Bank Loan (BL)	1	0	1	2	4	4.1
PS and FA	0	0	0	2	2	2.0
S and BL	1	0	0	0	1	1.0
GA, FA and BL	0	0	0	0	0	0.0
Total	**33**	**20**	**22**	**23**	**98**	**100.0**

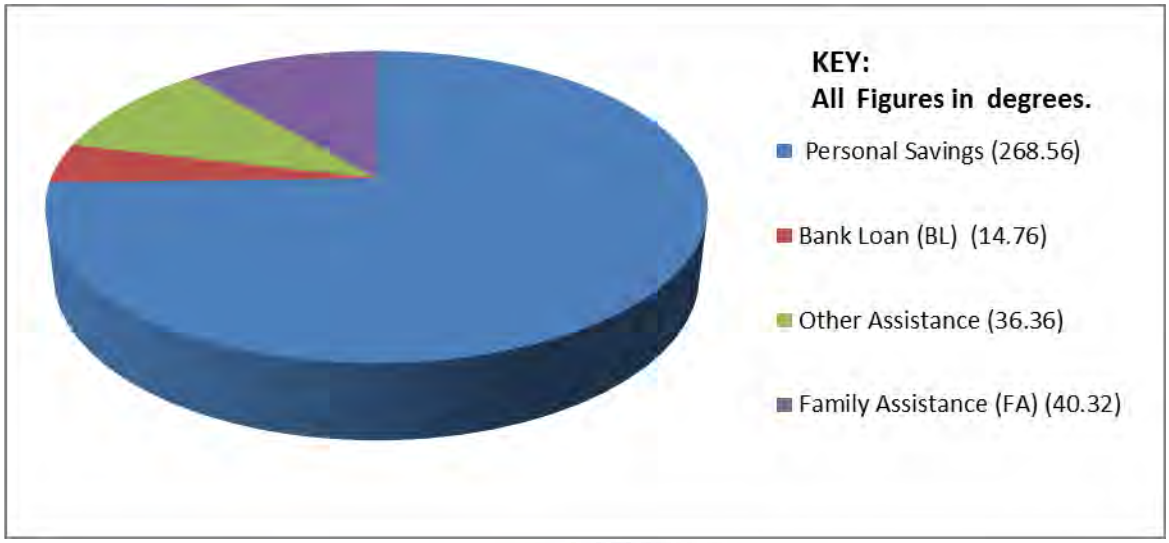

Figure 4.3 Start -up and Expansion Financing;

It appeared from Table 4.11 that the banks do not like the giving of start-up capital, and they also had no consideration for existing businesses/ workshops which could help them to purchase the requisite capital equipment for the improvement of their vehicle servicing capabilities.

In terms of expansion of businesses, only 4 out of the 98 respondents which represented 4.1% did so through bank loans, whilst 73 (74.6%) of the expansion of businesses by the artisans was done through personal savings (Table 4.11).

These findings testify that "most of the funds for establishing and expanding the businesses came from personal savings and relatives"; as indicated by Adzraku (2008).

(ii). **Availability of tools and equipment**

Research Question 2:

- Do small scale automotive workshops have the necessary technological tools, equipment and machinery for their service?

Analysis of result in relation to research Question 2 was based on item 2.1 to 2.5 of Appendix B. Item-by-item frequencies and percentages of the data are presented in Tables 4.12 and 4.13.

Table 4.12: Tools and equipment

Type of tools and equipment	**Location of Respondents**					
	HB	HD	HH	HA&H	TL	%
Hand tools only	25	15	17	19	76	77.5
Power/ diagnostic tools	0	0	0	0	00	00.0
Hand and power tools	5	4	2	2	13	13.3
Hand and fixed tools	2	1	3	2	08	8.2
Hand, power, fixed and diagnostic tools	1	0	0	0	01	1.0
Total	**33**	**20**	**22**	**23**	**98**	**100.0**

Table 4.12 presents information on category of tools and equipment used in the various workshops in the study area. It appears that, the availability of tools and equipment among artisans in the various workshops are not adequate. Majority of the artisans, 76 (77.5%) rely on basic hand tools which made servicing tedious and difficult. It was only one (1.0 %) out of the 98

artisans who possessed some modern diagnostic equipment for his business operations. Others, 97(98.98%) depended on the services of more modern workshops which were located elsewhere to service new vehicle models. For instance, personnel (technicians) had to be invited from workshops and garages in Accra and Tema to assist in the replacement of spare parts for some components as well as servicing units such as petrol injection, computerized and other electronic systems and liquefied petroleum gas (LPG) systems of modern vehicles. Only 8 (8.2%) of the 98 artisans interviewed also had fixed machinery in addition to the basic hand tools.

Table 4.13: Power connection to workshop

Item-by-item responses and percentages of artisans to Research Question 2.2.

Type of Power	**Location of Respondents**					
	HB	HD	HH	HA&H	TL	%
Three phase	5	2	2	2	11	11.3
Single phase	25	13	14	17	69	70.4
Generator	1	1	0	0	2	2.0
No power	2	4	6	4	6	16.2
Total	**33**	**20**	**22**	**23**	**98**	**100.0**

Deductions from Table 4.3 shows that, 18 (18.3%) of the respondents had no electricity in their workshops even though there was electricity in their various locations in the municipality where they were operating and two of the 18 used generators for their service. For those workshops which were connected with electric power, as much as 69 (70.4) were single phase consumers and only 11 (11.3%) were three phase consumers who could install capital-intensive diagnostic equipment in their workshops.

(iii) **Acquisition of Skills:**

Research Question 3:

- How did the artisans acquire their skills?

Analysis of the research findings in relation to Research Question 3 was based on items 3.1 to 3.8 of Appendix B. Item-by-item frequencies and percentages of the data are presented in Table 4.14 to 4.17. However, items 3.2, 3.3 and 3.5 are presented under a separate heading as, "Duration and Cost of Apprenticeship Training".

Tables 4.14: Places/Training Centers or Institutions, from which Artisans in the Study Area acquired their Skills

Place of Training	**Location of Respondents**					
	HB	HD	HH	HA&H	TL	%
Family vocation (F.V)	6	4	8	8	26	26.5
Apprenticeship (A)	19	7	6	10	42	42.9
Vocational school (V.S)	1	1	0	1	3	3.1
Technical school (T.S)	2	2	3	3	10	10.2
Polytechnic (P)	2	0	0	0	2	2.0
F.V and A	1	2	3	1	7	7.1
A and V.s	1	2	1	0	4	4.1
A and T.S	2	2	1	0	4	4.1
Total	**33**	**20**	**22**	**23**	**98**	**100.0**

Table 4.14 presents apprenticeship as an integral part of their training as almost half 42 (42.8%) of the artisans who learned their trade through apprenticeship schemes. After apprenticeships, some reasonable number of artisans, 26 (26.5%) and 10(10.2%) graduated through the family vocation or hereditary (which is known as informal education) and Technical School (formal) system respectively. These findings are in conformity with that of Amofa (1999).

Table 4.15: Participation of respondents in skills training courses

Responses and percentages of artisans to Research Question 3 (item 4).

Participated	**Location of Respondents**					
	HB	HD	HH	HA&H	TL	%
Yes	9	4	3	5	21	21.4
No	24	16	19	18	77	78.6
Total	**33**	**20**	**22**	**23**	**98**	**100.0**

Most of the respondents claimed that, even though they knew of the existence of formal training institutions like vocational or technical schools and polytechnics, the academic entry requirements had prevented them from having access to these places to upgrade their skills. Consequently, only 21 (21.4%) of the respondents had ever participated in skills upgrading courses of one kind or the other. Respondents from workshops in Ho Hliha had the least number of three out of the 21 who had ever participated (Table 4.15) in such courses.

Table 4.16: Willingness to participate in skills upgrading course

Responses and percentages of artisans to research Question 3

Willing	**Location of Respondents**					
	HB	HD	HH	HA&H	TL	%
Yes	32	18	20	20	90	91.8
No	1	2	2	3	8	8.2
Total	**33**	**20**	**22**	**23**	**98**	**100.0**

Table 4.16 revealed that, there was a strong and high desire or willingness among artisans to upgrade their skills. The study showed that 90 (91.8%) out of the 98 respondents had ever participated in skill upgrading courses. Those, 8(8.2%) who claimed they had not ever participated in skill upgrading courses attributed it to old age, stressing that, they were about sixty years old and felt there was no need at their age to opt for further training.

Table 4.17: Readiness to pay for upgrading

Responses and percentages of artisans to Research Question 3 (items 7 and 8)

Willing	**Location of Respondents**					
	HB	HD	HH	HA&H	TL	%
Yes	31	19	21	21	92	93.9
No	2	1	1	2	6	6.1
Total	**33**	**20**	**22**	**23**	**98**	**100.0**

Table 4.17 shows the readiness of respondents from the study workshops who expressed their readiness to pay and attend courses to upgrade themselves if only the training institutions were ready to assist in organizing the courses for them. They, 92 (93.9 %) out of the 98 respondents argued that, they would be ready to pay for the courses provided that the cost implications were reasonable and affordable. They claimed that, lack of opportunity to upgrade themselves had contributed or compelled them (the artisans) to continue passing on the mediocre skills they acquired from their masters to their apprentices which if not curtailed would continue from generations to generations. Respondents, 16 (6.1%), who were not prepared to pay related it to the weak financial position of their businesses. It also shows that there is a vast market for training institutions for the upgrading of artisans in the area.

These research findings in the summary of Table 4.17 were in line with the "Mission of Ghana National Association of Garages (GNAG) (Year?) as stated in the Literature Review of the researcher.

DURATION AND COST OF APPRENTICESHIP TRAINING

Responses to Research Question 3(items 3.2, 3.3 and 3.5)

The duration of apprenticeship varied from one trade to another and also from one master craftsman /artisan to another, all depending on the level of intelligence of the individual apprentices in question, as well as the status of the workshop (such as, the type of tools,

equipment and machinery, general environment and qualification of personnel) where the training was to be done. In all, apprenticeship ranges from a minimum of two years to a maximum of five years, depending on the status of the workshop. Some of the apprentices were compelled by poverty to do one or two more years of apprenticeship after expiry of their agreement in order to defray the cost of training and graduation. The cost varied from one trade to another and from workshop to workshop depending on status. From last year 2012 to the time of this research, the cost of entry and graduation ranged from two hundred Ghana Cedis to eight hundred Ghana Cedis (Ghc 200.00 to Ghc 800.00). The study revealed that artisans in the study area were creative and talented in their various trades, however, majority of them have been affected by the major constrain which is the low level of education of the master-trainers which limits their ability to access new technologies, and hence there was very little diversity among them which placed a negative bearing on their capacity to service new vehicle models. Thus artisans hardly generated any significant employment opportunities for the youth. Artisans rarely employed staff for their services or businesses because of the army of apprentices at their disposal, most of them who were school dropouts who provided the artisans with free and cheap labour.

(iv). **Sources of servicing/material inputs.**

Research Question 4:

- How do the small scale automotive workshops get materials and spare parts for their work or services?

Analysis of results in relation to Research Question 4 was based on items 1-4 of Appendix

B. Item-by-item percentages of the data for item 4.1 were presented in Table 4.18, while the results for items 4.2 and 4.3 are presented under a separate heading.

Table 4.18: Sources of spare parts/main materials input.

Source	**Location of Respondents**					
	HB	HD	HH	HA&H	TL	%
Customers (C)	4	4	5	4	17	17.4
Suppliers (S)	6	4	5	4	19	19.4
Own/Personal (O/P)	15	4	5	10	41	1.9
C and S	2	1	2	1	6	6.1
C and O/P	3	1	1	2	7	7.1
S and O/P	2	1	1	2	6	6.1
C, S and O/P	1	1	0	0	2	2.0
Total	**33**	**20**	**22**	**23**	**98**	**100.0**

According to Table 4.18 artisans themselves, 41 (41.9%), provide spare-parts or main material inputs for their workshops. Customers, 17(17.4%), and suppliers, 19 (19.4%), also aid in providing some few parts and materials for their servicing work.

Servicing/Main Material Inputs

(Research Question 4, item 4.2)

The activity of the artisanal groups covered by the study was mostly that of the maintenance and repair of vehicles with engines and repair of vehicle refrigerators and air-conditioners. Other supporting services were various machine systems repairs, fabrication of vehicle, engine and machine parts as well as car body works, spraying and internal decoration/ upholstery.

The survey revealed that, servicing and production techniques were still rudimentary in most of the workshops as they lacked the appropriate and requisite tools, equipment and machinery for carrying out their servicing work. There was much concentration of workshops in Bankoe, the seat of the paramouncy of the traditional area in Ho which was perceived to be so, because of the relative density of the population of the area due to its status and close proximity to the central market which attracted a comparative availability of some basic infrastructure

The urge or demand for the patronage of services were, in the opinion of artisans, not encouraging because of low purchasing power among the people coupled with the lack of the requisite tools, equipment and skills needed to carry out servicing and repair work on modern equipment and vehicles. With regards to *fitters*, the standard of service was very low except in one of the workshops in Bankoe which had attained the "Limited Liability" status and where some of the artisans had upgraded their skills through the Ministry of Transport (MOT) and National Vocational Training Institute (NVTI) programmes.

It came to light also that, the quantity of services rendered by mechanics was also affected by the proliferation and prevalence of imitation spare parts on the market. The fact that most of the fitting workshops or garages lacked the appropriate tools and equipment for their servicing job was proved or emphasized in Table 4.18 where the survey showed that only 41 (41.9 %) of the 98 artisans had provided service inputs from their own sources and most 36 (36.8 %) of the rest of the available inputs were provided by customers or suppliers.

Table 4.19: Mode of payment for services

Responses and percentages of artisans to Research Question 4 (item 4.4)

Mode of payment	Location of Respondents					
	HB	HD	HH	HA&H	TL	%
Cash down (CD)	17	5	5	7	34	34.8
Credit sales (CS)	4	1	1	1	7	7.1
High- purchase	0	2	3	1	6	6.1
Pre- financing (PF) only	4	4	4	6	18	18.4
CD and CS	3	2	2	2	9	9.2
CD and HP	3	2	2	2	9	9.2
CD and PF	1	3	4	2	10	10.2
HP and PF	1	0	0	1	2	2.0
CD,CS and HP	0	0	0	1	1	1.0
CD,CS and PF	0	0	1	0	1	1.0
CS,HP and PF	0	1	0	0	1	1.0
Total	**33**	**20**	**22**	**23**	**98**	**100.0**

The mode of payment accepted in the various workshops in the study area (Table 4.19), services were paid for mostly on either cash down (34.8%) or pre-financed (18.4%) basis. It was noticed that small fabricated tools and parts as well as repair of vehicles and equipment were mostly for local consumption and in most cases they were not standardized. Credit-sales were also partially accepted in some instances in some of the workshops. Artisans complained that low patronage of their services and goods were seriously affecting their businesses because of stiff competition among the artisans/workshops. There was therefore a keen competition among them to maintain customers through cordial customer relations to improve patronage. These lent credence to the

fact that credit sales and pre-financing together formed 25.6% of the system or mode of payment adopted by the various workshops for services and goods out of the 96 respondents covered.

Outcome of interview and observation on marketing strategy of workshops.

The interviews and observations conducted for the survey indicated that, the marketing strategy, product display/invitation to treat, and advertising were poor among most of the workshops. There were, however, pockets of brilliance among workshops with respect to display of products and services at Bankoe and Dome. The determination of the cost of services and products depended on a variety of factors including the cost of inputs and spare parts, the quality of service and product as well as the number of man-hours spent on rendering the service or producing the goods and the profit margin. The trade associations sometimes deliberately influence the cost of products and services by fixing them at their meetings of which artisans/workshops must comply with.

(v) Influence of trade associations/organizations and culture on small scale workshops.

Research Question 5:

- Do formal and informal organizations or institutions in the Ho Municipality assist/influence small scale automotive workshops?

Analysis of the findings in relation to Research Question 5.1 was based on items 5.1.1 to 5.1.10 of Appendix B. Item-by-item frequencies and percentages of data are presented in Tables 4.20 to 4.22.

Table 4.20: Membership of Trade Associations

Membership	Location of respondents					
	HB	HD	HH	HA&H	TL	%
Yes	20	5	10	16	51	52.0
No	13	15	12	7	47	48.0
Total	**33**	**20**	**22**	**23**	**98**	**100.0**

Table 4.20 reflected the one characteristic of artisans in the informal sector, which showed their ability to form or join trade associations. They were of the view that, joining these associations would promote the development and aspirations of their trades. Membership of these associations among artisans was quite encouraging even though some of the associations were. not well organized due to the low level of education among artisans. Meanwhile, the transport related associations in the Municipality were perceived to be well organized. Out of the 98 entrepreneurs (artisans) interviewed, 51 of them, making 52.0% were members of one trade association or the other. Some of the trade associations which the artisans mentioned were:

i. The Ghana National Association of Garages (GNAG)

ii. Ghana Union of Trade Associations (GUTA)

iii. Ghana Air-Conditioning and Refrigeration Workshop Owners Association (GARWOA)

iv. Ghana Co-operative Transport Union (GCTU)

v. Ghana Private Road Transport Union (GPRTU) and

vi. Progressive Transport Owners Association (PROTOA).

Artisans who claimed they did not join any trade association were 47(48%). They said that their businesses were not financially stable to allow them to meet any financial commitments such as payment of levies, dues and taxes as well as the initial registration fees if they should join any of the associations. Some of them also argued that, funds of most of the associations were sometimes misappropriated, which in some cases got into the private accounts of the leaders.

The survey revealed that, the Ho Municipal Assembly some years back planned relocating all workshops to a site near the Volta Barracks which could serve as an industrial hub for the Municipality. This effort appeared to be frustrated by the artisans themselves though most of them belonged to trade associations. Some of the reasons for the unwillingness of the artisans to come together and operate from a common site were:

i. Loosing of customers since the new site was of a distance from the heart of the town,

ii. The rate of service turn-over would reduce due to competition among artisans,

iii. Misunderstanding would develop among artisans since they belong to different trade associations,

iv. Lack of requisite skills and specialization among artisans,

v. Protection against security from real or imaginary enemies who might want to destroy their business,

vi. Suspicion among artisans, and

vii. Protection of trade secrets.

Table 4.21: Benefits from Trade Associations.

Item-by-item responses and percentages of artisans to Research Question 5.1 items 5.1.3 to 5.1.8.

Benefited	**Location of Respondents**					
	HB	HD	HH	HA&H	TL	%
Yes	11	5	7	6	29	29.6
No	22	15	15	17	69	70.4
Total	**33**	**20**	**22**	**23**	**98**	**100.0**

With reference to Table 4.21 some of the trade associations were instrumental in arranging skills upgrading courses through governmental and non-governmental organizations (NGOs), occasional arrangements for the supply of servicing and production inputs, standardization of prices, lobbying for tax reduction and exemptions and social welfare benefits for their members, for instance 29 (29.6 %) of the 86 artisans had benefited from one form of assistance or the other by virtue of belonging to a trade association. These research findings go with and conform to the mission of Ghana National Association of Garages (GNAG) as outlined in the literature Review of the study which seeks among a lot of objectives to bring together all garages or workshops and see to the benefit and welfare of its members.

Table 4.22: Influence of Customary Rites or Taboos on Workshop operations

Influence	**Location of Respondents**					
	HB	HD	HH	HA&H	TL	%
Yes	1	1	1	1	4	4.1
No	32	19	21	22	94	95.9
Total	**33**	**20**	**22**	**23**	**98**	**100.0**

Inferring from artisans responses in Table 4.22, it appeared contrary to the notion that customary rites or taboos have had and continue to have negative impact or influence on the organization and promotion of business in Africa. This was confirmed by the fact that, as many as 94 respondents, forming 95.9 % of the 98 artisans stated that, customary rites or taboos had no influence on their business operations. Specifically, only four respondents, two car body workers and two fabricators stated that, taboos in a way, influence their operations. The body workers maintained that, they never went to work on Wednesdays and Fridays respectively, while the fabricators, precisely blacksmiths stated that, they usually performed annual rituals for their tools and left them untouched for a week (seven days) else they will incur the wrath of their little gods since they are practicing paganism or they belong to the African Traditional Religion.

Possible Assistance to Small Scale Automobile Workshops

Analysis of the research findings in relation to Research Question 5.2 was based on items 5.2.1 to 5.2.7, Appendix B. Item-by-item percentages of the data are presented in Table 4.23 to 4.27. Responses of respondents to this research question were done by artisans as they wrote down brief comments about the various items.

These were compared with brief interviews and observations carried out and the results presented under the following headings with their item number indicated against them. Table of frequencies and percentages were used where necessary:

1. Enabling and conducive environment.

2. Formal and informal support institutions/organizations and their activities in the Ho township.
    - Training facilities
    - Trade Associations
    - Financial Institutions
3. General constraints of various trades (item 5.2.1)
    i. First major constraints
    ii. How to solve the major constraints in the opinion of the artisans (items 5.2.2 and 5.2.3)
    iii. Knowledge about Ho polytechnic and other institutions in the municipality (item 5.2.4)
    iv. Reasons why Ho polytechnic was not yet consulted (item 5.2.6)
    v. Area in which artisans wish to consult Ho polytechnic for assistance (item 5.2.5)
4. Assistance required by artisans from the various support institutions/organizations
    - Possible areas of support/ assistance.

1. Enabling and Conducive Environment:

Perhaps one of the greatest obstacles to the development of the informal sector in Ghana was the absence or lack of enabling environment. There was hardly any

sustainable informal sector as an engine of growth. As earlier pointed out in the background to the study, the formal sector provides only 20 % employment opportunities whiles the informal sector absorbs the remaining 80 %. Ironically, however, between 35 % and 41 % of governmental total annual recurrent budget was committed to educational training in the formal sector. The fate of the informal sector had been left to the uncoordinated traditional system of apprenticeship which was characterized by wide variations in skills standards. Reading thoroughly vision 2020 development plan, one realizes that little premium had been put on the informal sector in the development schemes of the Ho Municipality. Information obtained from bank officials (Appendix C) painted a picture of how rough the financial environment was for artisanal operations.

With regards to the financial environment as earlier indicated, local artisans have not had much consideration from the financial institutions in the study area. The requirement for lending money out to small scale businesses/workshops were difficult for the bulk of lowly educated artisan to meet. Some of the requirements, for example were as follows:

i. The possession of a business account that must have been satisfactorily operated for a minimum of six months.

ii. The artisans must have a reliable character/reputation and must have proper records of his/her business transactions.

iii. The viability of the project he intends to embark upon must not be in doubt.

iv. Evidence of insurance cover for the business when the loans go beyond five hundred Ghana cedis (Ghc500.00).

v. The possession of collateral security in the form of mortgaged land or houses, treasury bills, fixed deposits and government bonds.

Another factor that has made the financial environment even more hostile was the high interest rates. All the 98 respondents complained seriously about the high rates of interest charged by financial institution and other lending agencies. It was revealed that, small and micro enterprises were made to pay high interest rates per annum on loans granted to them. As a result of these high interest rates, low patronage of goods and services, poor purchasing power and the generally high risk were associated with loans taken. Hence, majority of the artisans interviewed choose to operate their businesses religiously from their own finances which were small

2. Formal and Informal Support Institutions/Organizations and their activities in Ho

The study took stock of support institutions and their activities, e.g. technical and vocational training centres (both governmental and non-governmental) and other agencies and discussed their roles in promoting the activities of small scale workshop-businesses.

Training facilities:

The Ho municipal area possesses some important educational training facilities that could be used for vocational and technical skills training in the Volta Region for small scale automotive workshops. Some of these facilities in the Ho Township were:

i. Ho Polytechnic,
ii. Ho Mawuli Senior High Technical School,
iii. Ho Rural Training Centre,

iv. Ghana Regional Appropriate Technology And Industrial Service (GRATIS),

v. Intermediate Technology Transfer Unit (ITTU).

Among the training institutions/centres found in Ho, the Ho Polytechnic was the most favourable, reliable and the most well - resourced and equipped in terms of training facilities for the automotive trade.

Trade Associations:

The trade associations identified in the study area were:

i. The Ghana National Association of Garages (GNAG), Ho Branch

ii. Ghana Private Road Transport Union (GPRTU), Ho Branch.

iii. Ghana Co-Operative Transport Union (GCTU) Ho Branch.

iv. Progressive Transport Owners Association (PROTOA), Ho Branch.

Financial Institutions:

Some of the support institutions in the study area are:

i. Ghana Commercial Bank(GBC), Ho Branch,

ii. National Investment Bank (NIB) Ho Branch,

iii. Barclays Bank, Ho Branch,

iv. Social Security Bank (SSB), Ho Branch,

v. Apex Bank (AB), Ho Branch,

vi. Norvisi Rural Bank (NRB),Ho Branch,

vii. North Tongu Rural Bank (NTRB),Ho Branch,

viii. First National Bank (FNB),Ho Branch,

ix. Avernor Rural Bank (ARB) Ho Branch,

x. Business Advisory Centre (BAC),

xi. National Board For Small Scale Industries (NBSSI),

xii. Small Scale Input Marketing Project (SCIMP),

xiii. Ghana Regional Appropriate Technology And Industrial Service (GRATIS),Ho Branch,

xiv. Intermediate Technology Transfer Unit (ITTU), Ho Branch,

xv. Sinapi Aba Trust, Ho Branch,

xvi. National Vocational Training Institute (NVTI),

xvii. Rural Enterprise Project (REP).

The governmental and private organizations listed provide certain support activities to local entrepreneurs/artisans, e.g. the banks provide credit facilities based on certain requirement/conditions. GRATIS and ITTU provide technical assistance by way of technology transfer and the leasing or provision of equipment on hire-purchase basis. NBSSI provides limited credit and technical and entrepreneurial training. NVTI, REP and SINAPI ABA TRUST provide support for skills training and certification.

3. General Constraints of Various Trades:

Most of the constraints identified applied to all the trades in general apart from the specific constraints associated with specific trades. For instance, lack of access to credit from the lending agencies because of lack of collateral security, stands out among the principal constraints identified. Most of the respondents (artisans), 38 (38.9 %), mentioned the lack of finances and poor access to credit as their number one constraint, when they were asked to prioritize their

constraints. About 17 (17.4 %), mentioned poor patronage as their major constraint, whilst 12 (12.2 %), for each, mentioned the high cost of spare parts, lack of tools and equipment. Added together, it appeared that, financial constraints, poor patronage, high cost of spare parts, lack of spare parts, tools and equipment accounted for 92% of the first and major constraints. Also, about only 1.0 % of the artisans interviewed refer to constraints linked to high cost of taxes. However, 2.0 % of the responding 98 artisans mentioned lack of skills as a first major constraints as revealed in Table 4.23.

Table 4.23: First major constraints

Constraints	Number of Respondents	%
Financial	38	38.9
Poor patronage	17	17.5
High cost of spare parts	12	12.2
Lack of spare parts	11	11.2
Lack of tools/equipment	12	12.2
Stiff competition	1	1.0
Lack of customer confidence	2	2.0
Lack of skills	2	2.0
Lack of staff	2	2.0
High taxes	1	1.0
Total	**98**	**100.0**

With reference to Table 4.23, though, the artisans appreciate their lack of technical and managerial skills most of them argued that with access to credit and high patronage of their services, they could pursue courses to upgrade their skills. However, it has to be stated that

access to credit and patronage as well as the acquisition of the requisite tools and equipment become better when skills are upgraded.

Some other general constraints identified were the lack of appropriate tools, equipment and machinery, seasonal demand for services, too many middlemen in the spare parts and input trade leading to the high cost of spare parts and inputs.

Additional constraints common to the trades were lack of customer confidence, availability of cheaper imported substitutes and poor quality of spare parts. Cumbersome registration procedure, high taxes and high utility bills, lack of power supply to workshops and excessive bureaucracy in dealing with public officials as well as high rents charged by the landlords were additionally mentioned by the respondents and coupled with the poor supportive environment for artisans and small scale workshops in general. The artisans in their opinion, outlined some of the best possible ways through which they think, the major constraints facing them could be redressed. These were:

- Making access to credit easy,
- Improving on the purchasing power of customers,
- Increasing patronage of services,
- Increasing access to market.

Table 4.24: How to solve the major constraint in the opinion of the artisans

Items-by-item responses and percentages of artisans to Research Questions 5.2.2 and 5.2.3

Solution	No. of Respondents	%
Access to credit/financial assistance	32	32.7
Ease of access to spare parts/inputs on credit	18	18.3
Improved customer's purchasing power	3	3.1
Access to market	10	10.2
Tools/equipment on high purchase	15	15.3
Better customer relations	2	2.0
Establishment of associations	8	8.2
Reduction in interest rates	3	3.1
Skills training	6	6.1
Reduction in taxes	1	1.0
Total	**98**	**100.0**

From Table 4.24, thirty-two (32) of the artisans, that is 32.7 % of the 98 respondents proposed the provision of financial assistance and improved access to credit as a solution to their constraints while 18.3 % of the respondents proposed the easing of access to spare parts/inputs on credit as a solution to their major constraints. Other proposals included the provision of tools and equipment on credit or high purchase basis, arrangements for acquiring spare parts and inputs at cheaper or reduced prices in general and a review of the lending rates.

The respondents highlighted on the establishment of strong associations to lobby for tax concessions and other requirements. These associations would also encourage the establishment of well functioning spare part stores in the localities of the study area to ease the problem of

artisans travelling as far as to Tema and Accra to purchase spare parts. Better customer relations through being courteous to customers were mentioned as being a contributing factor to better performance that could promote good and better patronage of services.

The artisan respondents additionally proposed an extended and sustainable skills training for those already in service, linked to technology transfer programmes.

Table 4.25: Knowledge about Ho Polytechnic and other Institutions

Item-by-item responses and percentages of artisans to Research Question 5.2 item 5.2.4

Response	**Location of Respondents**					
	HB	HD	HH	HA&H	TL	%
Yes	33	20	22	23	98	100.0
No	0	0	0	0	0	0.0
Total	**33**	**20**	**22**	**23**	**98**	**100.0**

Table 4.25 gives the responses of the 98 artisans in the study area when they were asked about their knowledge of services available in Ho Polytechnic and other institutions in the area. All the respondents confirmed that they had knowledge about the polytechnic and other similar or parallel institutions. Yet they did not know that the doors of the institutions were open to artisans for skills training programmes. They thought their level of education could not help them to access any of their programmes or facilities

Table 4.26: Reasons why Ho Polytechnic was not consulted

Item-by-item responses and percentages of artisans to Research Question 5.2 item 5.2.6

Reasons	No. of Respondents	%
Lack of knowledge of opportunities	34	34.7
Lack of entry requirement	10	10.2
Lack of finance	14	14.3
Workshop not well established	3	3.1
Time constraints/Personal problems	18	18.3
No link between the Polytechnic and workshop/artisans	19	19.4
Total	**98**	**100.0**

When artisans were asked why they had not yet consulted the Ho Polytechnic for skills upgrading and technology transfer to improve their trades, 34.4% of the 98 respondents stated that, they had no knowledge of the opportunities the institution could offer them. Only 10.2 %, attributed their inability to consult the Polytechnic to lack of entry requirements whilst 18.3% of them mentioned time constraints or personal problems as shown in, Table 4.26.

Table 4.27: Areas where artisans wish to consult Ho Polytechnic for assistance

Item-by-item responses and percentages of artisans to Research Question 5.2 item 5.2.5.

Area for Consultation / Upgrading	No. of Respondents	%
Normal academic programmes	8	8.2
Vocational skills	31	31.6
Technical skills	43	43.9
Managerial skills	10	10.2
Consultancy services	6	6.1
Total	**98**	**100.0**

Referring to Table 4.27 as already stated, there was an overwhelming desire among artisans interviewed in the study area to upgrade their vocational, technical and managerial skills through short courses at the Ho Polytechnic in order to improve and develop their services or businesses. When the respondents were asked on what to consult the polytechnic for, the overwhelming majority of 84 (85.7 %) out of the 98 respondents or artisans indicated short courses in vocational, technical and managerial skills. Only 8 (8.2 %) of them opted for normal academic programmes.

4. Recommended Assistance Required By Artisans In The Various Workshops In The Study Area

Based on the numerous constraints mentioned earlier, an attempt was made to identify the assistance required by artisans. The primary concern here was to consider how small scale automotive workshops could be supported in order to enable the sector improve its performances in terms of servicing especially on new vehicle models and also appreciating and developing its already vital socio-economic role to an acceptable level. The possible areas of support or assistance they suggested were:

- Review of the requirements or conditions for lending to small scale automotive workshops and a possible reduction in interest rates to encourage artisans to take loans for expansion in order to generate employment,
- The provision of tools and equipment on credit or hire purchase basis to artisans
- Upgrading of managerial skill of artisans through short courses,

- Vocational and technical skills training through the organization of short courses for artisans,
- Transfer of technology to small scale automotive workshops as a complement to their traditional methods of operations to ensure increased quality of service and productivity,
- The establishment of central workshop which are well equipped with appropriate equipment and machinery for artisans to use for servicing their workshops,
- Assistance in the acquisition of licenses to operate their trade in the Municipality, facilitation of registration processes or procedures at the Municipal Assembly, Internal Revenue Service and the Registrar General's Department,
- Facilitation in the acquisition of land for the construction of workshops with access to utilities to liberate artisans from the exploitation of land lords who charge very high rents,
- Promotion of the self-organization of artisans and creation of associations for the promotion of their trade/ business,
- Provision of research into the problems or constraints facing local artisans.

Out of these areas of support, required by artisans, Ho Polytechnic could preferably, provide the following services:

- Upgrading of managerial skills of artisans through short courses,
- Vocational and technical skill training through the organization of short courses for artisans,
- Transfer of technology to local small scale automotive workshops as a complement to their traditional methods of operations to ensure increased quality of service and productivity,

- Organization of courses in effective modern diagnosing of faults, and operation and handling of diagnostic equipment and industrial machines for artisans,
- Outreach programmes on the opportunities available at Ho Polytechnic for local artisans for upgrading their skills,
- Research into the problems or constraints facing local artisans and how they can be solved.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction:

The research sought to assess the capability of small scale automotive workshops in Ho to service newer vehicle models.

The research design used was the descriptive survey type. A sample size of ninety-eight was employed and the sample techniques adopted were: representative sampling, purposive sampling and snowball methods. Five research questions were used to guide the study and the instrument used to collect data were observation, unstructured interview and questionnaire. The data was analyzed by using frequency tables and also bar or pie charts were in some cases used to support the tables for better understanding.

5.2 Summary of Findings:

The summary of the findings are discussed under the sub-headings as follows:

i. **Status of Workshop/Personal data:**

Most of the workshops in the study area were of Sole Proprietorship type; however, one of them had achieved “Limited Liability” status. Also the general education level of the artisans was mainly Middle School and Junior High School education. The establishment of most of the workshops surveyed was mainly financed through

personal savings and family assistance. Banks also play a negligible role in providing start-up capital for workshops or to artisans

.

ii. Availability of tools and equipment:

The level of technology of local artisans was very low with the majority still using traditional methods in servicing vehicles since they do not have modern diagnostic servicing tools and equipment.

iii. Acquisition of skills:

The study has shown that artisans in the various locations consider apprenticeship as an integral part of their business. Almost all the artisans covered learnt their trades through the apprenticeship system. Only a handful of them graduated through the technical school system. These had contributed very much to their low capability to service new vehicle models, since they lack the requisite skills needed to do that efficiently and effectively.

iv. Sources of servicing/material inputs:

It was revealed that some basic parts and other servicing materials were generally available but were expensive. Services and products were meant only for local consumption and in most cases not standardized. The market was choked with second-hand parts, negatively reducing patronage of service. Quality of services was largely poor and vehicles stayed longer in workshops before being released to owner customers because of lack of appropriate tools and equipment needed for servicing.

v. Influence of trade associations/organizations and culture on small scale workshops:

Artisans who did not belong to any trade association were few. Those few claimed that they did not join any of the associations because of lack of confidence in the leadership of such associations. Although most of the artisans belonged to associations, there had been no concrete sign of unity among them for the promotion of their trade. Artisans themselves gave some of the reasons for their disunity like, joining of different trade association with divergent aims, competition among them, protection of trade secrets, fear of losing customers, protection against security from real or imaginary enemies and lack of requisite skills and specialization among artisans. Majority of them also contended that customary rites or taboos had no influence on their operation. Artisans were also not aware of the various opportunities which were readily available for them at Ho polytechnic for the upgrading of their skills. They suggested some areas of assistance they were expecting from the polytechnic.

5.3 Conclusions:

The study revealed that, the required conducive and enabling environments were not enough for the development and growth of small scale automotive workshops. Currently there were just very little or no clearly defined governmental policy on the promotion and development of private

sector or informal sector (micro and small businesses), which appreciates its vital economic and social role and its growing contribution to the labour market and job creation.

The review of registration procedures, taxes and interest rates regulations to reflect the potentials of micro and small scale realities and requirements were also highly needed and will be a precondition for the sector to develop economically in line with its existing social importance.

The participation of the various stakeholders, governmental institutions and non-governmental organizations and private providers which were active to provide service to the sector should be included in the process of developing policies. The policy should contribute to the co-ordination of the various support activities and actors and incorporate them into the district, municipal, metropolitan, regional and national economic development priorities.

However, the findings of the assessment exercise in Ho municipality will constitute a useful document in the search for making vocational and technical education more meaningful and relevant to local needs. The Ho municipal assembly could use these institutions in their strategic planning for small scale enterprises in general and automotive workshops (*fitting workshops*) in particular.

The involvement of students from these institutions in consulting activities would help them in time to apply their skills and knowledge to the different economic and social institutions in their various communities. In so doing, they might even be able to discover and identify new development needs in areas like design, science, environment and appropriate technology.

5.4 Recommendations of the Study:

The recommendations are presented in three separate but interrelated categories namely:

General Recommendations, Recommendations to Ho Polytechnic and Suggestions for further research. It is hoped that these recommendations and suggestions will go a long way to improve the capabilities of the small scale automotive workshops in Ho as well as in the municipality to service new vehicle models. The Ho Municipal Assembly should therefore work in collaboration with the GNAG, other trade associations, Ho Polytechnic and financial institution in the municipality for their implementation.

i. General Recommendations:

The general recommendations are also geared towards artisans for the improvement of their services or businesses as:

- A serious review of the requirements for lending to small scale enterprises or businesses and a possible reduction in interest rates to encourage artisans to take loans for expansion in order to keep in business and also to generate employment.
- The provision of tools and equipment on credit or hire purchase to artisans.
- Assistance in the acquisition of land for the construction or establishment of workshops in the municipality with utilities supplied to deliver artisans from the exploitation of landlords, who charge very exorbitant rents.
- The establishments of central workshops which are well-equipped with appropriate equipment and machinery for artisans to use for servicing their workshops.

- Assistance in the acquisition of licenses to operate their trades or business in the municipality and facilitation of their registration processes with the Internal Revenue Service and the Registrar General's Department.
- Vocational and technical skills training through the organization of short courses for artisans.
- Transfer of technology to local small scale workshops or enterprises or businesses as a replacement for their traditional methods of operations to ensure quality service and increased productivity.
- Mobilization of artisans by the Municipal Assembly to form strong associations for the promotion of their trades or businesses.
- Research more into the constraints or problems facing the local artisans and how they can be solved.

ii. Recommendations on Local Artisans.

- Plans should be put in place for the organization of short courses, workshops and seminars on sustainable basis in their trades by the Ho Polytechnic for them (artisans) in the Municipality to upgrade their technical and managerial skills.
- Artisans should be linked up with supply institutions for the supply of some of their inputs or spare parts at cheaper and affordable prices.
- Equipment and machinery should be given out on credit or hire purchase basis to local artisans by financial institutions through the effort and mediation of the Municipal Assembly.

- It is also important that technical students should be encouraged to do their industrial attachment at well established private workshops to encourage them to establish their own workshops upon completion of their programmes of study.
- It is recommended that there should be the design and production of simple engine, vehicle and machine parts as well as the fabrication of equipment and simple diagnostic machines by Ho Polytechnic as an assistance to artisans for the improvement of services or businesses.

iii. Recommendations to Ho Polytechnic:

A catalogue of recommendations is given on how Ho Polytechnic can assist local artisans to improve on their trade or services. These recommendations are:

- Outreach programmes on the opportunities available at the Ho Polytechnic should be organized for local artisans for the upgrading of their skills.
- Vocational and technical skills training through the organization of short courses for artisans in their workshops.
- Transfer of technology to local small scale workshops as complements to their traditional methods of operation to ensure increased, effective and efficient quality of service.
- Upgrading of managerial skills of artisans through short courses, workshops and seminars in the polytechnic and at other designated institutions within the municipality.
- Organization of courses in the operating or handling of modern complex and sophisticated diagnostic and servicing equipment as well as industrial machines.

- Research more into the constraints or problems facing local artisans and how they can be solved.

iv. Suggestions for Further Studies:

In order to provide an insight into how the present findings could relate to the small scale automotive workshops, further research work on other dimensions of the study is hereby suggested that:

- The sample size is increased to cover much wider areas (towns and villages) in the municipality.
- Other respondents, such as apprentice's customers (e.g. drivers, transport owners and transport service operators, etc) should be considered.

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APPENDIX A

Assessment by observation

No	Item	Very good	Good	Fair	Poor	Very poor
1.	Service/Product quality	[ ]	[ ]	[ ]	[ ]	[ ]
2.	Product Design	[ ]	[ ]	[ ]	[ ]	[ ]
3.	Product display	[ ]	[ ]	[ ]	[ ]	[ ]
4.	Customer relations	[ ]	[ ]	[ ]	[ ]	[ ]
5.	Safety standards	[ ]	[ ]	[ ]	[ ]	[ ]
6.	Health implications	[ ]	[ ]	[ ]	[ ]	[ ]
7.	Record keeping	[ ]	[ ]	[ ]	[ ]	[ ]
8.	Transfer of skills	[ ]	[ ]	[ ]	[ ]	[ ]
9.	Neatness of workshop	[ ]	[ ]	[ ]	[ ]	[ ]
10	Organization of workshop	[ ]	[ ]	[ ]	[ ]	[ ]
11.	Standard of facilities	[ ]	[ ]	[ ]	[ ]	[ ]
12.	Master/Apprentice relations	[ ]	[ ]	[ ]	[ ]	[ ]

11. Comments on environmental consciousness in and around workshop.

……

……

……

12. Other relevant comments (if any):

……

……

……

APPENDIX B

QUESTIONNAIRE FOR ARTISANS

UNIVERSITY OF EDUCATION, WINNEBA – KUMASI

DEPARTMENT OF DESIGN AND TECHNOLOGY EDUCATION

Dear respondent, the researcher is a final year post-graduate M.TECH MECHANICAL TECHNOLOGY student researching into the topic "An Assessment of the capabilities of Small Scale Automotive Workshops in Ho to service New Vehicle Models".

You are chosen as part of the research for excellence and in this direction your confidentiality of any information given is assured. Your role is to respond to the questionnaire items that follow this statement. Please be objective as possible.

Thank you.

Please tick (√) the appropriate response or briefly write down your comments.

Record Number: ……

Study area: Ho Bankoe [ ] Ho Dome [ ] Ho Hliha [ ]

Ho Ahoe and Ho Heve [ ]

SURVEY QUESTIONNAIRE FOR ARTISANS

1.0 Status of workshop/Enterprise/Personal data:

1.1 Status of Business: Sole Proprietorship [ ] Partnership [ ]

Co-operative [ ] Limited Company [ ]

1.2 Level of Education: None [ ] Primary [ ] Middle [ ]

J. S. S [ ] J.H.S [ ] S.S.S [ ] S.H.S/S.H.T.S [ ]

Technical [ ] Vocational [ ] Polytechnic [ ] University [ ]

Others (state) ……..

1.3 Is there a bank account for the business? Yes [ ] No [ ]

1.4 Has the business ever applied for a loan? Yes [ ] No [ ]

1.5 If yes, was the loan granted? Yes [ ] No [ ]

1.6 Do you keep service/works/sales register? Yes [ ] No [ ]

1.7 Do you keep expenditure register? Yes [ ] No [ ]

1.8 Is there an insurance cover for the business? Yes [ ] No [ ]

1.9 Do you have a certificate of registration for your business? Yes [ ]No [ ]

1.10 If yes, where are you registered? Registrar General [ ]

District Assembly [ ] Municipal Assembly [ ] Metro Office [ ]

Internal Revenue Service [ ] Trade Associations [ ]

1.11 How did you get your start-up capital? Personal Savings [ ]

Money Lenders [ ] Bank Loan [ ] Family Assistance [ ]

Others (state)……

1.12 Are you aware of any source(s) of credit facilities for small scale businesses?

Yes [ ] No [ ]

1.13 If yes, what are some of the sources? .....

1.14 Has there been any expansion of the business? Yes [ ] No [ ]

1.15 If yes, how was the expansion financed? Personal Savings [ ]

Money Lenders [ ] Bank Loan [ ] Family Assistance [ ]

Others (state)……

2.0 Availability of tools and equipment:

2.1 Tools and equipment: Hand [ ] Power/Diagnostic Tools [ ]

Fixed machinery [ ]

2.2 Power connections: Single phase [ ] Three phase [ ]

No power [ ] Generator used [ ]

2.3 Do you use standard tools/equipment in/for servicing/production?

Yes [ ] No [ ]

2.4 How are diagnosis carried out? Self [ ]

Others…….

2.5 How are spare parts replaced? Self [ ]

Others ……

3.0 Acquisition of Skills:

3.1 How did you learn your trade?

Vocational [ ] Technical [ ] Polytechnic [ ]

Others (state)…….

3.2 How long did the training take? .....

…….

3.3 How much does apprenticeship cost? Entry…….

Graduation…….

3.4 Have you ever attended any skills upgrading course since you started your business?

Yes [ ] No [ ]

3.5 If yes, state where, when and duration of course……

3.6 Would you like to attend a skill upgrading course? .....

3.7 Would you be prepared to pay for such a course? Yes [ ] No [ ]

3.8 If No, Why? .....

4.0 Sources of Servicing/Material inputs:

4.1 Sources of main material inputs: Customers [ ] Suppliers [ ] Own [ ]

4.2 What are your major service/products? .....

4.3 What is your average service/maintenance duration/time per job? .....

4.4 How is payment rendered for products/services? Cash down [ ]

Credit sales [ ] Hire-purchase [ ] Pre-financing [ ]

Others (state)……..

5.1 Influence of trade association/organizations and culture on small scale workshops:

5.1.1 Do you belong to any trade association? Yes [ ] No [ ]

5.1.2 If yes, state the association…….

5.1.3 Have you derived any benefit(s) from the association(s)? Yes [ ] No [ ]

5.1.4 If yes, what are some of the benefits? .....

5.1.5 Have you had any contact with any group/organization, which offers assistance to entrepreneurs? Yes [ ] No [ ]

5.1.6 If yes, which group/organization? .....

5.1.7 Have you had assistance from any of them? Yes [ ] No [ ]

5.1.8 If yes, what is the nature of the assistance?

Management Training [ ] Technical skills training [ ]

Financial Assistance [ ]

Others (state)……..

5.1.9 Are there any customary rites or taboos that affect your operations?

Yes [ ] No [ ]

5.1.10 If yes (state)…….

5.2 Possible Assistance to Small Scale Industries:

5.2.1 What are the important constraints facing your business?

(i) ……

(ii) ……

(iii)……

5.2.2 In your opinion, how best can these constraints be eliminated?

(i) …….

(ii) …….

(iii)……

5.2.3 In your opinion, how best can they be solved?

……

5.2.4 What do you know about Ho Polytechnic? .....

……..

……

5.2.5 In which field(s) would you like to consult Ho Polytechnic?

……..

……..

5.2.6 Why have you not done so earlier? .....

5.2.7 Which recommendation(s) can you give to this institution of learning about improving your business or otherwise?

……..

…….

Thank you very much.

APPENDIX C

QUESTIONNAIRE FOR BANKS AND LENDING AGENCIES

UNIVERSITY OF EDUCATION, WINNEBA – KUMASI

DEPARTMENT OF DESIGN AND TECHNOLOGY EDUCATION

The researcher is a final year post-graduate M.TECH MECHANICAL TECHNOLOGY student researching into the topic "An Assessment of the capabilities of Small Scale Automotive Workshop in Ho to service New Vehicle Models".

Please tick (√) the appropriate response or briefly write down your comments:

1. What are your objectives for small scale industries?
    a. ……..
    b. ……..
    c. ……..
    d. ……..
    e. ……..
2. How do government policies towards granting of credit to small scale industries affect your institution?
3. What category or range of loans do you offer to the public?
4. What do you look out for in your customers to grant them credit?
5. How often do you grant loans to small scale industries?
6. What problems do you encounter in granting loans to small scale industries?
7. What is your loan recovery rate with small scale industries?
8. How do you recover over-due loans?
9. What advice will you give to small scale industries to enjoy your valuable services?