UNIVERSITY OF EDUCATION, WINNEBA

COLLEGE OF TECHNOLOGY EDUCATION, KUMASI CAMPUS

ASSESS THE TRAINING NEEDS OF INFORMAL MOTOR VEHICLE GARAGES

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DECLARATION

Student declaration

I, **Offei David Inusah**, declare that this dissertation work, with the exception of quotations and references contained in published works which have all been identified and acknowledged, is entirely my own original work. It has not been submitted, either in part or whole, for another elsewhere.

Name: Offei David Inusah

Signature:………………………………   Date:…………………………………
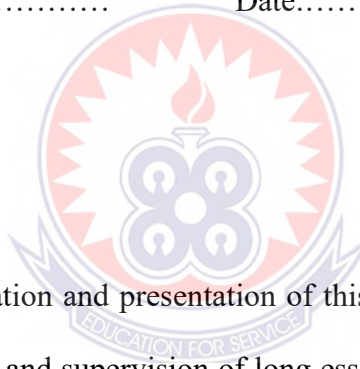
Supervisor's Declaration

I hereby declared that the preparation and presentation of this dissertation work was supervised in accordance with the guidelines and supervision of long essays laid down by the University of Education, Winneba.

Supervisor's Name: Ing. Enock A. Duodu (PhD)

Signature:………………………………   Date:…………………………………

DEDICATION

I wish to dedicate this work to Mrs. Esther Afritie Offei my lovely wife and children's.

To my beautiful and noble family – Mrs Esther Afriyei Offei, Offei Jemamah Rukaya, Offei Justine Sumaila, Offei Eunice Amina, and Offei Gloria Rahamah, who tolerated me when I had to leave them to be on campus, in order to climb higher the academic ladder, I gratefully dedicate this write-up.

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I cannot finish my acknowledgement without mentioning the assistance I received from my colleague's staff in Tamale Technical University.

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While acknowledging the contributions of the above individuals to the success of my dissertation, it must be stated clearly that none of them is in any way responsible for any errors or omissions in the work as these are part of the burden of authorship.

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ABBREVIATION

SRS	Airbag collision system
ABS	Anti-lock braking system
ECT	Automatic transmission control system
BC	Before Christ
BHPS	British Household Panel Survey
CRM	Customer Relationship Management
DVD	Digital Video Disc
EFI	Electronic control fuel injection
ECU	Electronic control unit
LRC	Height automatic control system
HR	Human and Resource
HRM	Human resource management
IMVGs	Informal Motor Vehicle Garages
KMO	Kaiser- Meyer-Ohlin
KSAs	knowledge, skills, and abilities
NCDS	National Child Development Survey
OJT	On-the-job training
PPG	progressive power steering
SERVQUAL	Service quality
SPSS	Statistical Package for Social Science
TaMA	Tamale Metropolitan Assemble
TCS	Traction Control Systems
T&D	Training and Development
TNA	Training Needs Analysis
UEW	University of Education, Winneba
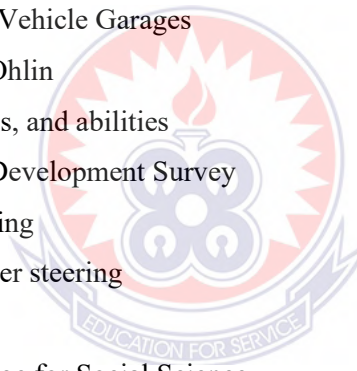
ABSTRACT

The study seeks to assess the training needs of IMVGs for enhancement and development of the sector as strategies of improving garages efficiency and effectiveness. Therefore, this study was considered as a step towards theory building relating to garages TNA in Ghana. The population for study consists of all garages owners/managers and potential drivers that deal with repairs and servicing of petrol and diesel engines in motor vehicle garages in the Tamale Metropolis. A purposive sample were used to select 100 garages managers and senior mechanics and simple random sampling technique were used to select 100 drivers for the purpose of the results of the study showed that knowledge and skills of vehicle master craft men, correlates very well among variables, which ranges between 0.846 and 0.294. The study also showed that customer relations with garage managers, customers trust for garage mechanics is quite good with the mean score between 3.34 to 4.65 with correlations ranging between 0.799 and 0.412. These values show very good correlations. On quality (customer satisfaction) service of informal motor vehicle garages, the mean score of each variable is shown between 3.18 to 3.58. Most of the correlations are good, 0.75 and very few are low, 0.020. Also, results established that customer are satisfied with motor vehicle garages in TaMA, with a mean score of each variable is shown ranges from 3.31 to 3.69. This correlation shows very good accord ranging between 0.83 and 0.35 with a very good KMO value of .912. In future study into this area should be aimed at establishing the courses and effects of the few customer dissatisfactions. This will go a long way to help chatter sustainable strategies for this important informal sector of our economy.

CHAPTER ONE

INTRODUCTION

1.1   Background to the Study

The informal motor vehicle garages in Ghana are essentially classified as micro, small and medium scale garages and they need Training to standards. These designations are based on staff strength. Jabayo (2009) defined small-scale enterprises as a commercial enterprise that has ten or fewer employees. Ajibefun (2003) classified small scale business as an enterprise with capital outlay of between N1.5million and N50million including working capital but excluding cost of land, and work force from eleven employees and above. According to the Central Bank of Nigeria (2003), an industry with a labour size of 11-100 workers or a total cost of not more than N50million, including working capital but excluding cost of land is a small-scale business/industry.

According to Agyapong (2010), the local garages can be further grouped into urban and rural. Automobile vehicle garages essential helps to service and maintain the vehicles. The use of automobile vehicles on our roads plays a key role in road transportation system. In Ghana where land transport is largely in use compared to water, air as well as other modes of transportation, the use of automobile vehicles, either diesel or petrol driven is predominant. However, the vehicles cannot remain new forever. A continuous use of the vehicles results in their general wear, tear and breakdowns; and as the parts breakdown and wear out, so, must be maintained (Akinola, 1995).

Modern automobile vehicles are a blend of 20th century and 21st century technology. The designs of modern vehicles have advanced to a very complicated level. Unlike the old mechanical operated vehicle systems, the modern vehicles are being operated and controlled by computerized electrical sensors. Indeed, almost every other function within the engine is controlled by an onboard computer.

Modern Riders, (2014), moreover, common to majority of the new trend cars is the electronic control unit (ECU) and other electronic gadgets that sense instant faults in the vehicle and immediately notifies the driver through the dashboard display. The modern trend of mechanical services therefore requires the use of more complex and highly technological specialty diagnostic equipment to analyze vehicle faults for repair and service. To ensure this for efficiency, safety, comfort, style and so on, competent professional hands are required (Chron, 2014). As vehicle technology, repair and maintenance processes are advancing, and the problems facing automobile garages in the country have rather compounded due to lack of practical training in the modern technological vehicles.

Currently, it is a common knowledge and skills that a large proportion of the auto mechanics, both the experienced and trainees, of the informal garages in the country find it extremely difficult to diagnose, repair and maintain modern cars and their need to be train to fit in the profession. Indeed, this has worked to the effect that most of the informal garages in the country, especial the micro and small ones are now currently out of business. The major problem faced by the local garages in the country as far as the repair and maintenance of modern cars are

concerned could be attributing to reasons such as, inadequate knowledge and skills of the modern electronic vehicles.

Additionally, problem faced by the garages also attribute to lack of customers relations, and inadequate quality service which leads to loss of customers in most of the informal motor vehicle garages. These trigger the researcher to assess the training needs of the informal motor vehicle garages in the Tamale Metropolis to see the way forward to bridge the gap of performance in modern electronic vehicles and to reduce the collapsing of some of garages in the metropolis.

Globally training is very essential to any workforce to attain the required knowledge, skills and thoughts to carry out jobs more efficiently, given that training is the procedure for assisting the workforce to gain further knowledge of their tasks and also to learn or improve the required skills, attitudes and values linked to the competent performance of their field of work (Tulsian and Pandy, 2009). Gómez-Mejia et al. (2001) maintain that in obtaining new knowledge and skills, attitudes are modified and bring about better competence and general job performance.

Parry (2000) maintains that employees, methods, machinery, materials and money are the resources which organisations have to achieve their goals. Parry adds that the employees are the primary resource given that all the other resources exist to extend the effectiveness of the human resource. Parry (2000, p. 1) argues that the purpose of training is to make it possible for people to exploit "*these resources to the best advantage. Organizations that are seen as world class have done a better job than their competitors in training and developing their employees.*"

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In addition, training helps resolve problems in relation to performance which is caused by lack of sufficient knowledge of the job or levels of skills. Despite the fact that training is necessary for everything which can be logically referred to as human resources development, it cannot solve all performance related problems (Buckley and Caple, 2009) as performance based models would suggest. In addition, it is claimed that the central focus of interest of performance models has at all times been knowledge, skills and attitudes of individual employees, and it is usually accepted that the association of human resource development with performance is without any problems (Garavan et al., 1999). The researcher tries to assess the training needs of informal motor vehicle garages in Tamale metropolis to feel the gap. These make the garages competitive in the job market which go a long way to improve Ghanaian economy.

1.2 Research Problem

The researchers visited to some micro, small and medium scale garages in some of the motor vehicle garages zones, including 'Aboabo', 'Lamashiegu industrial area, Jasonayili, Kakpayili, Kukou, Sakasaka, Kalpohni to assess how the garage managers are diagnosing, repairing and maintaining the modern competerised vehicles activities are carried out in the- art of maintenance practices, as well as manager's relationship with customers in their garages and finally how the garage manager demonstrating quality service in garage for competitive advantage.

This study will seek to provide insight the training needs for informal garages for both conventional and computerised automobile vehicle repair and maintenance practices, customer relations and quality services in the micro, small and medium scale garages in Ghana

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specifically Tamale Metropolis. It is the researchers believe that this study will help reduce the gap, items of computerized vehicle repair and maintenance, customer relations and quality service of garages will be sustained in the Tamale Metropolis and the country at large.

1.3 Purpose of the Study

The purpose of this study is to assess the training needs of IMVGs for their enhancement and development of the sector as strategies of improving garages efficiency and effectiveness. In addition, the study also focuses on the training needs of practical knowledge and skills of the manager's on modern vehicle technology, customer relations and quality service in the garage.

1.4. Objectives of the Study

1. To identify the knowledge and skills of vehicle master craft men
2. To recognise customer relations with garage managers
3. To find out the practice of quality service of informal motor vehicle garages
4. To establish level of customer satisfaction with motor vehicle garages in TaMA
5. To determine the relationship between customer satisfaction with motor vehicle garages and level of patronage.

1.5. Research Questions

The following questions were developed to meet the objectives of the study.

1. What are professional knowledge and skills training needs of vehicle master craft men?
2. What are the customer relations training needs of vehicle master craft men?
3. What are the quality services of motor vehicle garages training needs?

4. How satisfy are customers with motor vehicle garages in TaMA?

5. Is there any relationship between customer satisfaction with motor vehicle garages and level of patronage?

1.6 Significance of the Study

This study is significant for two particular reasons:

1.6.1 Academic Insight

This study was supports the continuing efforts to bridge the gap between academic knowledge, and the practical understanding of the key features of the TNA of garages in Ghana. Therefore, this study was considered as a step towards theory building relating to garages TNA in Ghana. The researchers are aware that, this study was the first to compare and contrast approaches to the TNA process adopt by developing and developed countries.

1.6.2 Policy Development

This research was informed about the policy-makers of the current practice of IMVGsA. It also was use raises awareness of the importance of garages TNA as an important strategic function, which werel help garages to achieve corporate strategies, and it gives a better understanding of how garages TNA will be effectively approach and implement.

Having identify and analyses the current status of the garages TNA, with reference to the best practice and emergent academic research, this study will provide useful guidelines to assist garages in shifting the role of their TNA functions from one in which they adopt reactive roles to

one where they play proactive strategic roles, and it will derive a better understanding of the role of TNA in garages' development and success. Based on the above, the study will enlighten the IMVGsA with regard to effective TNA. All recommendations will take account of the socio-cultural factors at work within the garages.

1.6.3 Rationale of the Study

The IMV garages, as one of the most active sector that plays serious role in repair and maintenance of automobile vehicle in Ghana this will embrace as a legitimate partner by the community, and the country to pursue efficiency and effectiveness through its use of the latest technological advancements and systems management practices. The purpose of training needs is to make sure the managers and customers will perform all roles with ease and in such a way as to ensure the safety and satisfaction of each other for the benefit of the country. The training needs of garages has taken on a significant role in the process will facilitate change within organisations around the world.

1.7. Methodology

The study was conducted in Tamale Metropolis the capital town of Northern Region of Ghana. Most of the garages in the Metropolis are congesting with most of conventional and computerized vehicle since the introduction of this module into the country and it believe that garages are collapsing and some garage managers are struggling to stay in the business for that matter they try to convert some of the computerised vehicles to conventional vehicle.

The population study consists of 875 garages owners/managers and about 6500 potential drivers that deal with repairs and servicing of petrol and diesel engines in motor vehicle garages. A

purposive sample were used to select 100 garages managers and senior mechanics and simple random sampling technique were used to select 100 drivers for the purpose of the study.

The instrument for data collection faced validation by researcher supervisor (senior lecturer from University of Education, Winneba, College of Technology Education, Dean of faculty of Technical Education, from Wood Technology Department, Kumasi Campus an expert in research). The interpretations of data were combination of the literature review and the outcomes of the study.

Descriptive statistics, such as Cronbach Alpha (α) was used to analysis the reliability of the questionnaires , Pearson rank correlation were used to validates the correlation between the variables for it significance of mechanics TNA and regression analysis were also used to analysis the variables to find out significance of garages TNA to improve development the mechanics .These procedures were use the Statistical Package for Social Science (SPSS version 16) computer package which were used to analysis the quantifiable answers obtained from the questionnaires. Narrative analysis were used to analysis the open-end questions, which were also used in the discussion of the results and in drawing the conclusion remarks of the study since statistical analysis alone may not always answer the question 'why' (Otieno, 1995).

1.8. Delimitation

These studies were delimited to the assessment of training needs of informal motor vehicle garages manager's within Tamale Metropolis. The study was also looked at the practice and training needs for their knowledge and skills of informal motor vehicle garages practice. The

researchers will also look at the customer relations and quality service training needs for the informal motor vehicle garages manager's.

1.9. Limitation

Due the scat nature of the garages in the metropolis the researchers were not able to capture all garages that were willing to cooperate for the study. The researcher was limited for few hours to go round the Metropolis to administer the questionnaires with research assistances.

1.10. Organisation of Study

These studies were consisting of five chapters. Chapter 1 discusses the background, statement of the problem, purpose, objectives of the study, research questions, significant of the study, research methods, delimitation, limitation and organisation of the study. Chapter 2 the researchers presented the relevant literatures review, background of automobile workshop, Identify Training Needs, training needs analysis, customer relationship management, customer value co-creation and quality service.

Chapter 3 the researchers presented the framework of methodology and the prioritisation methods for selecting the scope and the target group use for the study. Chapter 4 presented the discussions about the results which were obtained from the surveys. Chapter 5 will provide a set of findings, conclusion and recommendations for conducting training needs of informal motor vehicle garages managers.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

This chapter reviews literature to accomplish the stated objectives. It covers areas such as: the training needs of Informal Motor Vehicle Garages; the knowledge and skills of vehicle master craft men; customer relations with garage managers; and service quality of informal motor vehicle garages.

2.2 Review of Concepts

Holton et al. (2000) and Brown (2002) needs analysis examines training needs on three levels: Organisational, Tasks, and Individual. Therefore, to design training needs that satisfy both organisational and human assets. Training needs programmes must be based on organisational, operational, and individual analyses together with the use of appropriate methods and techniques to collect data from all three levels Jamil (2006).

2.2.1 Organisational Analysis

According to McGehee and Thayer (1961), organisational analysis involves determining where within an organisation, training emphases could and should be placed. Noe (2005), organisational analysis also involves the consideration of strategic company directions, of whether managers, peers and employees support training activity, and of what training resources (budget, time, expertise for training) are available.

It identifies the knowledge, skills, and abilities that employees will need for the future, as the organisation and the jobs of its employees evolve or change (Miller and Osinski, 2002).

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2.2.2 Task/Operations Analysis

According to McGehee and Thayer (1961), task analysis identifies the nature of the tasks to be performed on the job and the knowledge, skills, and abilities (KSAs) needed to perform these tasks. Therefore, operations/task analysis looks at the knowledge and skills requirements of each specific job and compares these requirements to employees' actual knowledge and skills. Any gaps reveal a training need (Cekada, 2010).

Harrison (1997), in Marchington and Wilkinson (2000), defines job analysis as: "a process of identifying the purpose of a job and its component parts, and specifying what must be learned in order for there to be effective work performance".

Therefore, job analysis is about collecting, recording, tabulating and analysing duties and tasks, identifying the competencies that are necessary for employees to perform their jobs, and identifying job performance standards, knowledge, skills and abilities essential to perform these tasks.
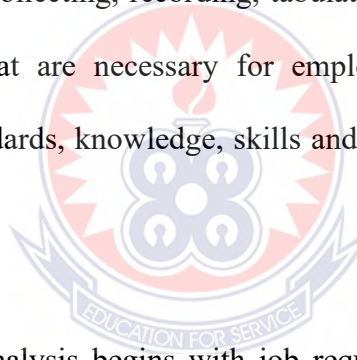
Brown (2002) stated that task analysis begins with job requirements and compares employee knowledge and skills to determine training needs. Examining job descriptions and specifications provides necessary information on expected performance and the skills employees need to accomplish their work. Any gaps between performance and job requirements indicate a need for task training. This analysis answers the question of what job needs training and where.

2.2.3 Person/Individual Analysis

According to McGehee and Thayer (1961), person analysis focuses on identifying who should be trained and what training is needed by individuals. Consequently, individual analysis targets

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individual employees and how they perform in their jobs. According to Latham and Wexley (1991), and Stone (2002), individual analysis examines employees' performance and compares it with the established standards, in order to determine the training needs for each employee. Thus, it focuses on how well employees perform their jobs and what skills, abilities and knowledge they use to conduct those jobs. Basically, person analysis answers the questions of which people need training and what kinds of training they need. In order to answer such questions, we need to find what specific skills and knowledge are to be developed if the employee is to perform his/her job well. Table 2.3 summarises the three-level analysis of TNA.

Table 2. 2 : Levels of Analysis of TNA

Level of Analysis	Description
Organisational Analysis	Examines company-wide goals and problems to determine where training is needed
Task Analysis	Examines tasks performed and KSAs required to determine what employees must do to perform successfully
Person Analysis	Examines knowledge, skills and current performance to determine who needs training

Source: Landy and Conte (2009)

McGehee and Thayer (1961) proposed that all three levels were inter-related and that organisational objectives served as an overarching umbrella cascading down to the lower levels (Jamil, 2006). Utilising a variety of data collection methods to accomplish the needs assessment,

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organisation, operational (or task), and person analyses are conducted (McGehee and Thayer, 1961).

An organisation analysis measures and studies the institution's strategic objectives, strategic direction, overall support for training, and training resources (Moore and Dutton, 1978). Task analysis assesses the competency level required to perform the job, the environment in which the job is performed, the actual activities of the job, and the knowledge, skills, and abilities required to perform the job (Moore and Dutton, 1978). Finally, a person analysis measures the trainee's personal characteristics, their cognitive abilities in respect of the job, the expectations placed on them (both current and future), the incentives they receive, and the feedback they receive (Herbert and Doverspike, 1990).

Noe (2008) maintains that these three analyses need not be done in any particular order, but in general, companies will conduct an organisation analysis first because this assessment decides whether or not training is aligned with business strategies. That information is necessary for the training programme to move forward. Task analysis and person analysis are generally done together *"because it is difficult to determine whether performance deficiencies are a training problem without understanding the tasks and the work environment"* (Noe, 2008).

2.3 Identify Training Needs

Firstly, an assessment of the training needs of an organization is undertaken in order to determine whether training is the best solution to address the present issues. In general, this analysis consists of analysing the organisation as a whole (e.g. goals, objectives, and support for training), the tasks of the job(s) in question, and the employees performing the job(s) (Arthur et al*.,* 2003;

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Noe, 2010; Salas and Cannon- Bowers, 2001). Miller and Osinski (2002) also stated that need assessment as the critical activity for the T&D function.

2.4 Reasons for Conducting a Training Needs Assessment

Brown (2002) identifies four main reasons why needs assessment must be undertaken prior to training programmes are prepared, including the following:

1. "To identify specific problem areas in the organisation. HR and management must know what the problem are so that most appropriate training (if training is the answer) will be directed to those organisational problems. This reason seems to contrast the third reason reported above by Swist (2001). While Swist distinguished between training needs from organisational problems, Brown proposes identifying problem areas within the organisation.

Brown (2002) argues that training is appropriate when the organisation can expect to obtain more benefit from the training than it invested in its cost. However, despite TNA importance a number of organisations do not conduct a needs assessment as regularly or as systematically as they might (Sims, 2006; Werner & De Simone, 2011). Zemke (1998) and Gordon and Zemke (2000) indicate that if anything, the competitive pressures facing organisations have made it more difficult than before to undertake a needs assessment. Needs assessment are not performed for many reasons, including the following (Werner & De Simon, 2011).

 (Grant, et al, 2002) cited by (Tao et al., 2006) formal needs assessment methods regularly employed to identify group needs, including critical incident techniques, gap analysis, objective knowledge and skills tests, observation, revalidation and self-assessment.

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Gilley and Eggland (1989) also mentioned the six most useful methods, including interviews, questionnaires, tests, group problem analyses, records and report studies, and job analysis and performance reviews. Botha and Coetzee (2007) and Aamodt (2013) identify similar methods to Grant's (2002) methods, though Botha and Coetzee (2007) add performance appraisal data Grant's list of methods. Qualitative data collection methods employed in training needs assessment; include interview, critical incident interview, focus group, and observation (Tobey, 2005).

Depending on the method employed, the needs data obtained can be regarded as "*felt needs (what people say they need), expressed needs (expressed in action), normative needs (defined by experts), and comparative needs (group comparison)*" (Grant, 2002, quoted in Tao et al., 2006). Among those, the "felt-needs" methodology, which usually asks employees to simply list or rank desired training courses, has regularly been employed to assess needs of large numbers of employees (Holton et al., 2000).

2.5 Training and Training Needs Analysis

The significance and value of training has long been recognised. Consider the popular and often repeated quotation, "Give a person a fish and you feed him for a day. Teach a person to fish and you feed him for a lifetime". This simple but profound saying is attributed to the wisdom of Confucius who lived in the 5th century BC. Given today's business climate and the exponential growth in technology with its effect on the economy and society at large, the need for training is more pronounced than ever (McClelland, 2002).

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Training is responsible for building skilled, qualified and capable people, which helps organisations to improve their performance and adapt to any new change. Furthermore, training needs is to develop employees in a systematic process that intends to ensure that the organisation has effective employees to meet the exigencies of its dynamic environment.

2.5.1 Training

There is no single definition of training. The simplest definition of training in the traditional training theory is the acquisition of knowledge and skills for presently known tasks. Training serves to help increase upward mobility within the organization, to adjust workers to the technological changes affecting the workplace, and often simply to introduce people to the world of work at the entry level.

Buckly and Caple (2009) "It is a planned and systemic effort to modify or develop knowledge, skill and attitude through learning experience, to achieve effective performance in an activity or range of activities. Its purpose, in the work situation, is to enable an individual to acquire abilities in order that he or she can perform adequately a given task or job and realize their potential"

Once these are established, the design and development of an appropriate training plan to serve the needs is the next stage, which is followed by the implementation of the training according to the plan, and finally by an evaluation of the training programme to determine whether the original needs have been achieved. Execution along these lines is believed to ensure training effectiveness. (Blanchard and Thacker, 2012).

2.5.2 Training Needs Analysis

Scholars generally recognise that the first important phase in planning and developing a training programme is the determination of the needs for such a programme within an organisation (Chen and Hung, 2012; Rossett, 2009; Sleezer*et al.,* 2008; Vijayalakshmi and Vaidhyasubramaniam, 2012).

Therefore, TNA is an on-going process of gathering data to determine what training needs exist so that training can be developed to help the organisation accomplish its objectives. Furthermore, the idea behind TNA is that only when there is a match between training needs and the content of training, can outcomes that are beneficial for organisational performance be realized (Van Eerde et al., 2008).

2.6 Role of Training and Development of Employees

Formal training programmes are an effective way of directly transferring the organisational goals and values to a whole group of people simultaneously (Shen, 2006; Harzing, 2004). Appropriate training can develop managers at all levels including the knowledge and skills required to gain competency in order to manage change in organisation in any business environment (Stewart, 1996; John, 2000).)

In multinational companies, training can provide an important impetus to achieve shared values and facilitates network building between headquarters and subsidiaries. Helliriegel et al, (2001) states that training of employees in organisation increases higher productivity through better job performance, more efficient use of human resources, goals and objectives more effectively met,

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reduced cost due to less labour turnover, reduced errors, reduced accidents and absenteeism, more capable, and mobile workforce and retention of the existing staff.

Similarly, Echard and Berge (2008) stated that effective training techniques can produce significant business results especially in customer service, product development, and capability in obtaining new skill set. This linkage of training to business strategy has given many businesses the needed competitive edge in today's global market.

Echard and Berge, (2008) also provides that effective training and development improves the culture of quality in business, workforce, and ultimately the final product (Huang, 2001) An educated and well trained workforce is considered to be essential to the maintenance of a business firm's competitive advantage in a global economy. Human Resource Management (HRM) practices of training and development enhance employee skills, knowledge and ability which in turn enhance task performance of individual and in the long run increases the organisational productivity (Huselid 1995).

However, Wood, (1999) argues that HRM practices are universal across organisations or whether the effectiveness of human resources management is contingent upon factors while (Asgarkhani, 2003) argues that the success of training is contingent upon the effectiveness of performance planning and measuring. The fact of the matter is that the three fundamental aspects surrounding this approach are process classification, selection of proposed methods, and delivery.

Further and consider Shandratilek (1997) and Dessler 2005 who emphasized that the point that the availability of high quality employees, places the organisation in a competitive advantage over others even within the same industry and that the inadequacy of expertise is a major constraint as such organisation take major concrete measures to organize training programmes. The resultant effects of properly executed training programmesare reflected through the performance management process.

Training is an opportunity for promotion and self-improvement, improved job satisfaction through better job performance, a chance to learn new things and there is greater ability to adapt and cope with changes (John et al, 2002). This is supported by (Bhalla, 2006) who argued that the objective of any organisation training program is to train their employees to meet the needs of the optimum profit potential.

In addition, Hower (2008) pointed out that the purpose of training is to empower associates with the skills necessary to make decisions and accomplish their daily tasks and skills that help them give extraordinary service to customers. In the business of customer service, training is essential to the impact made on the customers. Customer service and problem resolution are trainable skills and will determine whether the customer impact is positive or negative. It also prepares employees for their next career move.

This move may be in the organisations or in life in general. Lynton and Pareek (2000) argue that to enhance individual motivation for training, the employees should be part and parcel of what it communicates to applicants through all its contacts with them. This would make applicants feel

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confident that the training foci are clear and shows perceptive concern for people taking part in the program. Furthermore, (Guerrero and Sire, 2001) supported Lynton and Parreek's view but they explained motivation with regard to teachers.

They found that systematic observations by a colleague of a candidate's behavior in a session and sharing indications of his effectiveness with him subsequently greatly enhanced the candidate's motivation for training. Moreover, (Bushart and Fretwell, 1994) emphasizes that training employees leads to an increment in employees' satisfaction, updating of skills and an increased commitment to the organisation.

2.7 Methods of Training Employees in Organisation

(Dessler, 2005). The Training methods can be generally be categorized as either on the job or off the job. The training delivery options for either method can be sourced from either in-house or external sources, or a combination of both (Coles, 2000; Tennant, 1995)

2.7.1 On the Job Training Methods

On-the-job training (OJT) is having a person to learn the job by actually doing it (Dessler, 2005: Sims, 2006) whereas (Tennanat et al, 2002) defines on the job training as a method where the learner develops skills in the real work environment by actually using the machinery and the materials during training. (Coles, 2000) concludes that it is an effective method, because the learners apply their training in real-time rather than sitting in a classroom environment and forgetting what they have learned when they return to their work.

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However, off-the-job training provides opportunities to widen the boundaries of the teaching and can often be a useful initial step ahead of on-the-job training. Van der Klink and Streumer, (2002) suggests that the frequent use of this type of training stems from three incentives, the favourable relationship between training costs and benefits, the responsibility to train just-in-time; and the expectation of appositive transfer of what was learned to the employees' work situation.

However, Jacobs et al, (1995) investigated the costs and benefits of OJT. On the contrary the findings by Jacob indicate that OJT does not always result in favourable benefits. From the empirical data that are available, it is not possible to deduce whether OJT is an effective form of training, or what the factors that determine its effectiveness. The following are the methods used in training on the job employees.
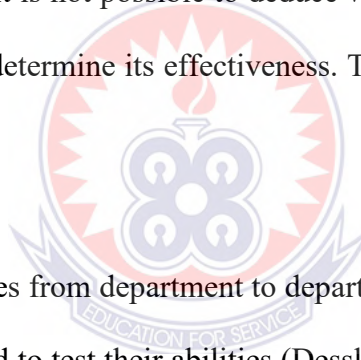
Job rotation means moving trainees from department to department to broaden the understanding of all activities of the business and to test their abilities (Dessler, 2005). Similarly, Matthews and Ueno, (2000) argued that job rotation is the transferring of executives from job to job and from plant to plant on a coordinated, planned basis to get a holistic view of the activities of the organisation. The benefits of job rotation are that it provides a variety of job experiences for those judged to have the potential for added responsibilities.

It can therefore be seen that job rotation serves the purpose of breaking down departmental provincialism-the feeling that only my department is important and others' problems are not worthy of my concern. Furthermore, Job rotation injects new ideas into the different departments

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of the organisation (Matthews and Ueno, 2000). Lecture method involves trainers communicating through spoken word what they want the trainees to learn (Noe, 2005). Class room lectures are used in many organisations to impart information to trainees.

2.7.2 Off-The Job Training Methods

Classroom training approaches are conducted outside of the normal work setting. In this sense, a classroom can be any training space set away from the work site, such as the organisation cafeteria or meeting room (Sims, 2006). Conducting training away from the work setting has several advantages over on –the-job training. First, classroom setting permit the use of a training technique, such as video/DVD lecture, discussion, role playing simulation.

Second the environment can be designed or controlled to minimize distractions and create a climate conducive for learners. Smith, (2000) suggests that this method develops learners who are inquisitive (have flexible thought processes, and are open to new ideas,), guide learners through the process of learning and applying effective oral and written communication skills, encourage learners to acquire the skills required to function in work environment.

Simulation is a necessity when it is too costly or dangerous to train employees on the job (Dessler, 2005). Role playing had its origin in psychotherapy, but it has found wide use in industry for improving sales, leadership, and interviewing skills, as well as other skills. (Maier,1983), this was supported by (Dessler, 2005) when he wrote in his book that the aim of role playing is to create a realistic situation and then have the trainees assume the parts of specific person in that situation.

2.8. Domestic Automobile Repair Industry

At present domestic automobile repair industry are most old model and these are no longer exists, and the new model has not yet fully formed. The maintenance enterprise faces the challenges of the new technology of automobile repair.

2.8.1 Development of Modern Vehicle Technology

In order to improve the emission pollution to the environment, the car gradually increase a lot of devices, that makes the car to become increasingly complicated structure. Engine first adopted the high-energy electronic ignition system, because of high energy ignition this can make the engine adopts a thin mixture. For the realisation of the engine air-fuel ratio, along with the change of vehicle speed and resistance to timely control of gasoline and the air volume ratio of gasoline engine electronic control fuel injection system (EFI) was born, to replace the carburetor type fuel and air mixing system.
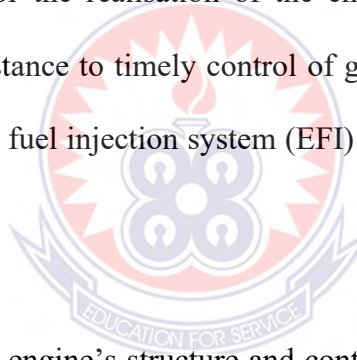
From then on, the car entered the engine's structure and control system to high-tech technology development track. The modern vehicle microcomputer control system in the automobile vehicles agencies also gradually obtained the application; improve the car's handling, through sex, safety and comfort.

Such as body height automatic control system (LRC England), anti-lock braking system (ABS), airbag collision system (SRS), progressive power steering (PPG), automatic transmission control system (ECT), air conditioning automatic control system, vehicle wireless telephone system. So

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maintenance personnel must master modern vehicle technology development process, in order to face the challenges of the new technology of automotive maintenance with assurance.

2.8.2 Change the Traditional Way of Maintenance

The modern vehicles structure are been control by computerized and mechanics must now obtain a very high science and technology education, and adopt the modern maintenance way of "craft repair" on the modern vehicles. The so-called "craft repair" means based on experience to guide car. Experience usually refers to sensory experience, namely the perceptual knowledge, through the big break discharge method to find fault, and the collapse of only for repair of the traditional cars.

On the other hand, due to the low cultural quality of workers, also not easy to put these through repeated practice of overhauling of "experience" to rise to rational knowledge, also can't always from large discharge. In the face of high-tech cars, without disassembly method must be adopted to use detector for diagnosis, find out the fault correctly and the causes of failure, to develop troubleshooting solutions. At the same time, the car manufacturers should help provide the vehicle maintenance manuals, according to the rules of procedure for repair operation.

2.8.3 Apprentice Technology Competency to Improve Performance

It is very essential to develop apprentice technology competency to improve performance of the staff and to ensure better productivity of the organisation. Organisational performance stimulation has always been a priority in private as well as in public sectors, since it is directly

associated with the value creation of the entity. Organisations are constantly striving for better results, influence and competitive advantage.

Common measures of the organisational performance are effectiveness and efficiency (Bounds at all, 2005; Robbins, 2000). For managers, suppliers and investors these two terms might look synonymous, yet, according to Mouzas (2006), each of these terms have their own distinct meaning. Most organisations assess their performance in terms of effectiveness. Their main focus is to achieve their mission, goals and vision. At the same time, there is plethora of organisations, which value their performance in terms of their efficiency, which relates to the optimal use of resources to achieve the desired output (Chavan, 2009).

2.9 Nature of Motor Vehicle Garage

2.9.1 Automobile Vehicles

An automobile workshop qualifies as a small scale business as it possesses the outlined characteristics. Automobile, according to Fetherston (2009), is a self-propelled vehicle, used primarily on public roads. George (2002) cited in Abwage (2007), defined automobile as a self-propelled land vehicle usually having four wheels and an internal combustion engine, used for personal and public transportation. It is of different types according to styles, number of doors and purpose of uses.

Thus, normally cars, have four wheels and can carry up to five people including the driver; vans, minivans or buses, designed to carry more passengers; pickups or trucks depending on their sizes

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and designs, to carry cargo; sport utility vehicles also known as SUVS, used for driving in mud or snow (Fertherson, 2009).

2.2.2 Automobile Garage

A garage, according to Jubril (2011) is a place, area, room or building where machines, equipment, hand tools, workbenches and materials are used in manufacturing or repairing of things. However, when these vehicles developed one fault or the other, they are being taken care of in an automobile workshop, and by a competent motor vehicle mechanic. Therefore, an automobile garage is a place where basic vehicle repairs and maintenance is being carried out by auto mechanics or motor vehicle mechanic.

2.9.3 Automobile Mechanics.

Hiller and Coombes (2004) defined a motor vehicle mechanic as skilled personnel who specialized in automobile maintenance, repairs and sometimes modification. Penn (2009), defined an auto mechanic as a skilled personnel, trained in any of the trades in auto mechanics, which include: Auto body repair and spray painting, Auto electrical work, auto-body mechanic work, auto-body building (panel beating) and auto parts merchandising. An auto mechanics may be knowledgeable in working on all parts of a variety of car models, or may specialize either in a specific skill area of automobile or on a specific model or brand of car. His job includes accurate diagnosis of car problems and repair (US Occupational Handbook, 2011-2012).

For a small scale business, like automobile workshop to be established and also to succeed, there are some skills needed to be possessed by the individual. According to Osuala (2004),

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competition is a major force driving business to be more efficient and to employ strategies that will improve production, service and product quality. The automobile mechanic therefore needs to possess both employability and knowledgeable and skillful for the repairs and maintenance of automobile vehicle.

2.10.1 Auto Mechanic Employable and Technical Skills

2.10.2 Auto Mechanic Employable Skills

Employability skills are those basic skills or general work skills necessary for getting, keeping and doing well on a job (Robinson, 2000). A grouping of such skills is summarized by Osuala (2004) as follows: Individual competence: communication skills, comprehension, computation and culture, personal reliability skills: personal management, ethics and vocational maturity, Economic adaptability skills: problem solving, learning employability and career development and group and organizational skills: inter-personal skills, organizational skills and skills in negotiation, creativity and leadership. On the other hand, technical skills are job-specific related skills required to perform a particular job (Robinson, 2000).

2.10.3 Auto Mechanic Technical Skills

Arul (2002) stated further that technical skills involve: specialized knowledge, analytical ability within a specialty and faculty in the use of tools and techniques of the specific discipline. Technical skills are required in different occupational areas of auto mechanics such as engine servicing, repair and maintenance, auto body building; auto electricity/electronics, vulcanizing, steering and suspension, braking system, and auto air conditioning.

These skills according to Nwoji and Osinem (2010) include: Safety and health skills, basic and advanced machine operation skills, technical writing skills and bulletins and Sketching/drawing skills. The success or failure of any business depends to a very large extent on the skills possessed by the operator of the business. Unfortunately, people do not consider the place of these skills such as the employability and technical skills in the establishment and success of their business, like the automobile workshop, hence the need to study the employability and technical skills needed to establish a small-scale automobile workshop for enhancing job creation, entrepreneurship development and wealth generation.

The influx of automobile importation in recent times into the country has led to the need for the establishment of small-scale automobile garages in Tamale Metropolis urban of the country and most especially as a result of the peculiarity of the town for repairs and maintenance practices by highly skilled practitioners have established the all over the metropolis. People with employability and technical skills required for the job experience progress when they established their workshops.

2.11.1 Customer Relationship Management (CRM)

In this connection, it is worth noting that the concept of CRM can be defined in different ways. It also means different things to different people; depending on the working environment it has been used in (Baran et al., 2008; Dimitriadis and Steven, 2008; Piskar and Faganel, 2009). Therefore, there is no single correct definition of CRM (Abdullatif et al., 2010; Hamid, 2009; Nagi, 2005). However, to enrich the literature about CRM, this study will define it as " a tactical approach that enables garages to use internal resources (i.e. Technology, people, and process) to

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manage the relationship with customers for the whole of their lives cycles, in order to create a competitive advantage and improve an organization's performance".

2.11.2 Customer Relations Management (CRM) Dimensions

Undoubtedly, CRM has recently become one of the most controversial issues and a focal-point in the business field (Balaram & Adhikari, 2010; Becker et al., 2009; Dimitriadis & Steven, 2008; Ozgener & Iraz, 2006). It is worth mentioning that CRM is mainly based on the belief that establishing a sustainable relationship with customers is the cornerstone for obtaining loyal customers who are much more profitable than non -loyal ones (Dowling, 2002).

In this regard, the successful implementation of CRM strategy will be of great benefit to the organizations, adopting it, as such organizations can reap the benefit of increasing sales through better market segmentation, customizing products and services, obtaining higher quality products, gaining access to information and employee satisfaction, and above all, ensuring long-lasting customer-retention and loyalty (Alomtairi, 2009; Ozgener and Iraz, 2006; Stockdale, 2007; Verma and Chandhuri, 2009).

Moreover, managers should bear in mind that recent studies on the CRM selectively focus on some service sectors, such as banking (Akroush et al., 2011; Becker , Greve, and Albers 2009; Eid, 2007; Hussain et al., 2009; Krasnikov, et al., 2009; Sin, Tse and Yim 2005), telecommunication (Almotairi, 2009; Beldi*et al.,* 2010), healthcare (Bunthuwun et al., 2011; Hung et al., 2010), and contact center (Abdullatif et al., 2010).

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Consequently, there is still a marked lack of research on CRM in the Automobile industry sector (Luck and Stephenson, 2009; Wu and Lu, 2012). So it is not a surprise to find Vogt's highlighting this concept. He says, although there is ever-increasing use of CRM in the automobile sector, there are still limited researches investigating its variety of applications in such significant industry (Vogt, 2011).

Furthermore, several researches refer to the importance of making studies on CRM dimensions in the automobile sector (Akroush et al., 2011; Sadek et al., 2011; Sin et al., 2005). As a result of that, it is reasonable to lead the conclusion that it is not only very little attention has been given to the CRM dimensions in the automobile industry, but there is also plenty of opportunity for extending the literature about CRM dimensions and garages performance, both theoretically and empirically.

2.11.3 CRM and Automobile Industry

Despite the fact that CRM brings lasting benefits to organizations, as a whole, some of them gain profits from implementing it more than others; CRM brings benefits to the organizations that generate a lot of information about customers (Bose, 2000; Kotler, 2002; Mguyen et al., 2007). In addition to this, Gronroos (2004) that service organizations for their intrinsic characteristics of the production and consumption are inseparable elements necessary to build relationships with customers.

Accordingly, CRM will be ideally suited to the automobile industry, especially when implementing it successfully and effectively, taking into our account that garage receives a lot of data about customers. Such data can be transformed into useful knowledge about them (Kotler,

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2002; Lin and Su, 2003; Mguyen et al., 2007; Nasution and Mavondo, 2008; Dev and Olsen, 2000).

Suffice it to say that automobile industry, like any business sector has to be highly competitive to be able to do well in the business environment, therefore, it is of vital importance for it to encourage behavioral patterns of continuous re-purchase and to retain customers last longer. Thus, it is evident that such ambitious aims can only be achieved through implementing CRM, which will result in establishing fruitful relationship between organizations and their customers (Papastathopoulou et al., 2007; Verdugo et al., 2009).

Moreover, it goes without saying that growing customer- acquisition costs, rising customer expectations, price-sensitive travelers, more sophisticated clients, uncertain market and less brand loyalty are all key factors, which strongly urge automobile industry to focus on CRM as a useful strategy. Needless to say, CRM is widely considered as one of the most effective ways to facilitate developing and expanding the customers' base that, in turn, will assist in enhancing profitability and guest loyalty (Mylonakis, 2009; Sigala, 2005; Sigala and Connolly, 2004; Wu and Li, 2011).

2.11.4 Customer Orientation

It is important in the first instance to confirm that the main purpose behind customer –oriented behaviors is to increase customer long-lasting satisfaction and to create customer-loyalty. Therefore, studies have demonstrated that good customer -oriented behaviors, in an organization, definitely ensures a tremendously positive impact on its performance (Kim, 2008; Yilmaz et al.,

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2005). Similarly, King and Burgess (2008) reach the emphasis that customer orientation is a crucial factor in the successful implementation of CRM.

Moreover, current researches have revealed that service firms, like hotels, require a better understanding of customer orientation and its great importance to such firms and their performance (Kim et al., 2006; McNaughton et al., 2002; Sin et al., 2005). As in the service oriented organization, the delivery of service in a hotel occurs when there is interaction between service providers and the service encounter (Ki Lee et al., 2006). Hence in order to enhance service experience, automobile engineers need to focus on customer interaction. Customer oriented can be achieved through a positive relationship between customer and service provider. Research has supported that customer orientation leads to increase organizational performance (Asikhia, 2010; Liu et al., 2003; Zhou et al, 2009).

Furthermore, customer orientation is also one of the market beneficial sources, it helps organization to understand customer, and hence it helps in delivering an appropriate plan to satisfy customer needs (Liu et al., 2003). Furthermore, several studies revealed that there is a relationship between customer orientation and marketing planning capabilities (Morgan, Vorhies, and Mason, 2009; Pulendran and Speed, 1996).

Besides this, the beneficial influence of customer orientation strategy on marketing-planning capabilities, this strategy also influences the successful implementations of marketing actions or innovations (Slater and Narver, 1998). Hence, the researcher has noted that despite the numerous positive impacts of customer - orientation on organizations performance, the fact remains that

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there is still a shortage of literature about customer - orientation impact on automobile garages performance (Sin et al., 2006; Tajeddini, 2010).

2.11.5 CRM Organization

First and foremost, to enhance service employees to conduct customer- oriented behaviors, organizations have to develop an appropriate working environment for service in work, for instance, providing staff with the modern tools, and technology, customer-satisfaction tracking and complaints management systems, inspirational leadership, and appropriate rewards systems. As a result of the previous supportive working conditions, organizations can ensure the required customer - oriented behaviors of their employees (Mechinda and Patterson, 2011).

The researchers also argue that CRM cannot be successful even if the organizations enjoy the most advanced technology and adapt a customer - oriented approach, unless the project is completely integrated by them (Sin et al., 2005; Yim et al., 2005). Further, as a confirmation for this point Ku (2010) stress that CRM success does not only require technological quality or systems, but it also requires an effective service concept as well as suitable operation procedures.

Thus, the success of CRM implementation relies on the active involvement of the employees in the organization itself. (Boulding, Staelin, Ehret, and Johnston, 2005; Payne, 2006; Tamilarasan, 2011). Therefore, we can say that CRM organization has to be an essential means through which firms effect fundamental changes in the way they organize their actual business processes for employees and customers (Sin et al 2005; Yim et al., 2005).

Inevitably, all the organization resources (such as marketing capabilities, policies, culture, and organization structure) have to be integrated in order to implement CRM successfully and, in turn, to improve organizations performance. Previous studies also declare the positive impact of CRM organization on customer retention (Yim et al., 2005), financial and marketing performance (Akrouch et al., 2011; Sin et al., 2005).

Moreover, Richards and Jones (2008) argue that CRM organization may influence future marketing decisions, such as brand differentiation, price, communication, and distribution. In this regard, it has also been reported that many garages chain cleverly and flexibly quote their repairs and maintenance prices according to the customer data that were collected previously (Nunes and Dréze, 2006).

It goes without saying that Knowledge about customers plays a vital role in CRM, taking into our consideration the fact that the main purpose behind collecting data about customers is to get a clear image about them from different perspectives (Sin et al., 2005). Therefore, organizations can authenticate such data to be able to establish and develop beneficial relationship with their customers (Zahay and Griffin, 2004).

2.11.5.1 Customer Expectation

Changes in customer expectations can be identified throughout the world. Customer relationship management (CRM) strategies have become increasingly important worldwide due to these changes in expectations from customers as well as changes in the nature of markets. Changes

have been noted across the world, but opportunities present themselves in South Africa and other developing countries for CRM strategies.

Customer Relationship Management (CRM) is a managerial philosophy that seeks to build long term relationships with customers. CRM can be defined as "the development and maintenance of mutually beneficial long-term relationships with strategically significant customers" (Buttle, 2000). Under certain circumstances it may result in the termination of relationships (du Plessis, Jooste & Strydom, 2001).

It can also be noted that the relationship is developed with strategically significant customers, and hence it is necessary for the organisation to determine the nature of the significance. Traditionally this would be done by determining the value of the customer to the organisation, but other criteria that can be used include whether a customer serves as a benchmark for other customers or whether the customer inspires change in the supplier (Buttle, 2002).

The implementation of CRM is regarded as desirable by organisations due to the benefits that accrue from these strategies among their customers, such as greater loyalty and resulting profits. The focus of a CRM strategy is the acquisition, retention and overall customer profitability of the specific group of customers.

2.11.5.2 Acquisition of Customers

This refers to the need of organisation to find new customers for their products. This means they are required to develop strategies to attract potential customers to purchase the product. The cost

of attracting a new customer is estimated to be five times the cost of keeping a current customer happy (Kotler, 1997).

2.11.5.3 Retention of Customers

Organisations also need to focus on existing customers in order to ensure that they continue purchasing and continue supporting the product. Organisations can increase their profitability by between 20% and 125% if they boost their customer retention rate by 5 percent (Peck, Payne, Christopher & Clark, 2004).

2.11.5.4 Profitability

Customer profitability reflects the financial performance of customers with respect to all the costs associated with a transaction (Gordon, 1998). Profitability in the case of CRM is determined in the light of the lifetime value of the customer to the organisation, taking account the income and expenses associated with each customer and their respective transactions over time (Gordon, 1998).

2.12 Knowledge Management

Needless to say that useful information about customers can be gathered through interactions with them or from different touch points within the organization itself (Brohman et al., 2003), and the criterion for deciding whether CRM is successful or not, is to effectively transform customer information into customer knowledge (Plessis and Boon, 2004; Stringfellow et al., 2004).

In this connection, they can say that managing knowledge effectively can greatly help an organization to have success in building better customer relationship, resulting in a positive impact on organization performance (Abdulateef et al., 2010; Akroush et al., 2011; Sin et al., 2005; Yim et al., 2005). They have to take into our account that the success of relationship management is heavily dependent on collecting and analyzing customers' information, as such information is used for developing highly personalized offerings (Sigala, 2005).

As a matter of fact, it is necessary for organizations to remain competitive, and this aim cannot be achieved unless they enjoy wide knowledge about their market, explore and make use of their existing knowledge about their customers. Hence, Lo et al., (2010) suggested investigating the impact of knowledge management dimension on automobile industry in future research. In this case, researchers state that there is limited research that explains the role of knowledge management in the automobile context (Hallin and Marnburg, 2008; Shaw and William, 2009).

Meanwhile, garages that enjoy a lot of customer's knowledge to be disseminated among their different departments are more likely to implement successful marketing activities for meeting their customer needs (Noble and Mokwa, 1999). Moreover, Fan and Ku (2010) indicate that customer knowledge management is firmly associated with marketing capabilities, and it greatly enables organizations to take strategic managerial decisions for improving their performance.

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2.13. Customer Participation Behavior

2.13.1. Information Seeking

According to Kellogg, Youngdahi, and Browen (1997), customers seek information to clarify service requirement and satisfy other cognitive needs. More specifically customers want information about service status and service parameters. Customer need information about how to perform their task an as value co-creators as well as what they are expected to do and how they are expected to perform during a service encounter.

Providing this information reduce customer uncertainty regarding value co-creation with employees. Just as employees acquire the task role knowledge, and behaviors needed to participate as organization members, customer seek to understand the nature of service and their roles in the value co-creation process (Kelly, Donnelly & Skinner,1990; Kellog et al 1997).

Information seeking is important to customers for two primary reasons. First, information reduces uncertainty and thereby enables customers to understand and control their co-creation environments. Second, information seeking enables customer to master their role as value co-creators and become integrated into the value co-creation process. Customers can seek information from the firm in a number of ways. For example, customers might directly ask another person for information or they can monitor the behavior of experienced customers to obtain informational cues (Kelley et al., 1990; Morrison, 1993).

2.13.2. Information Sharing

For successful value co-creation, customers should provide resources such as information for use in value co-creation processes (Lengnick-Hall,1996). If customers do not provide essential information, employees cannot even begin or perform their duties. Through sharing information with employees, customers can ensure that employees provide the service that meets their particular needs (Ennew& Binka,1999).

For example, taking the car in for service, customer need to give the mechanic information about strange noise or vibrations. Or when ordering a cake for a special occasion, customers should provide adequate information for the flavor and design. Patients should provide the physician with prope information about their condition so that the physician can make an accurate diagnosis. If customers fail to provide accurate information, the quality of value co-creation may be low. Thus, information sharing includes the key to the success of value co-creation.

2.13.3. Responsible Behavior

Responsible behavior occurs when customers recognize their duties and responsibilities as partial employees (Ennewn & Binka, 1999). For successful value co-creation between themselves and employees, customers need to be cooperative, observing rules and policies and accepting directions from employees (Bettencour 1997). For example, customers must follow employees directives and be physically present for the successful value co-creation. Without customers' responsible behavior, little value co-creation occurs in the service encounter.

2.13.4. Personal Interaction

Personal Interaction refers to interpersonal relations between customers and employees, which are necessary for successful value co-creation (Ennew & Binka, 1999). (Kelley et al., (1990) use the term customer functional quality to refer to the interaction between customers and employees, which includes interactional aspects such as courtesy, friendliness, and respect. Value co-creation in a service context takes place in a special setting; the more pleasant, congenial and positive the social environment is, the more likely customers as to engage in value co-creation (Lengnick-Hall, Claycomb, & In 2000).

2.14. Customer Citizenship Behavior

Feedback includes solicited and unsolicited information to customers provide to the employee, which helps employees as the firm to improve the service creation process in the long (Groth, Mertens, & Murphy, 2004). Customers are in a uniquesition to offer guidance and suggestions to employees, became customers have considerable experience with the service and experts from the customer perspective (Bettencourt, 1997). Customers are of the receiving end of employees' behavior, and firm can benefit greatly from customers' suggestions for service. While feedback from customers can be valuable, it clear constitutes an extra-role behavior and is not a requisite for successful service delivery.

Advocacy refers to recommending the business- whether the firms employees- to others such as friends or family (Groth et al., 2004) the context of value co-creation, advocacy indicates allegiance to the firm and promotion of the firm's interests beyond the individual customer interest (Bettencourt, 1997). Advocacy through positive word mouth is often an indicator of

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customer loyalty, and it contributes great to the development of a positive firm reputation, promotion of the firm products and services, higher service quality evaluations and increasing the customer base size (Bettencourt, 1997; Groth et al., 2004). Like customer citizenship behaviors, advocacy is completely voluntary and not mandatory for successful value co-creation.

Helping refers to customer behavior aimed at assisting other customers. In service co-creation process, customers usually direct helping behavior at other customers rather than at employees because other customers in a service encounter may need help behaving in ways consistent with their expected roles (Groth et al., 2004). Unlike the roles of employees, the roles of customers are less defined and role –scripted, placing customers in a situation that can require spontaneous help from other customers (Groth et al., 2004). Rosenbaum and Massiah (2007) also argue that customers might extend empathy to other customers through helping behaviors. They note that customers recall their own difficult experiences and display a sense of social responsibility to help other customers experiencing similar difficulties.

Tolerance refers to customer willingness to be patient when the service delivery does not meet the customers' expectations of adequate service, as in the case of delays or equipment shortages (Lengnick-Hall et al., 2000). Because service encounter failure is the second largest cause of customer switching behavior, which damages market share and profitability of the firm, customer tolerance will plausibly help the firm in the aggregate overall (Keaveney, 1995).

2.15. Quality

Quality has been defined from diverse perspectives. Quality was primarily seen as a defensive mechanism but it is seen as a competitive weapon for emergence of new markets as well as growing market share (Davis et al, 2003). Quality can be defined as satisfying or exceeding customer requirements and expectations, and consequently to some extent it is the customer who eventually judges the quality of a product (Shen et al., 2000).

An extensive range of literature over the last 25 years has examined the concept of service and acknowledged the intangibility of services as one of the problems allied with measurement (Joseph et al., 2005). Furthermore, in the service sector, where production, delivery and consumption can occur simultaneously, the concept of quality refers to the matching between what customers expect and what they experience. Customers evaluate service quality by comparing what they want or expect to what they actually get or perceive they are getting (Berry et al., 1988).

When it comes to the service sector in banks, it turned out to be that they propose comparable kinds of services worldwide (Lim and Tang 2000), rapidly corresponding their competitors" innovations. Nevertheless, customers can perceive differences in the quality of service. Banks have realized the significance of concentrating on quality of services as an approach to increase customer satisfaction and loyalty, and to develop their core competence and business performance (Kunst and Lemmink, 2000).

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2.16. Service Quality

Gronroos (2000) defined service as, "A practice consisting of a chain of more or less insubstantial actions that normally, but not necessarily always, take place in interactions between the customer and service employees and/or physical resources or goods and/or systems of the service provider, which are provided as solutions to customer problems." Service quality is one of the significant success factors that influence the competitiveness of an organisation. A bank can distinguish itself from competitors by providing high quality service.

Service quality has been one of the most highly researched areas over the last decade in the retail banking sector (Avkiran, 1994; Stafford, 1996; Johnston, 1997; Angur et al., 1999; Lassaret al., 2000; Bahia and Nantel, 2000; Sureshchandar et al., 2002; Gounaris et al., 2003; Choudhury, 2008). However, this study examines the factors that enable banks to attract and sustain their customers. Most studies have found service quality to be the antecedent of customer satisfaction (Bedi, 2010; Kassim and Abdullah, 2010; Kumaret al., 2010; Naeem and Saif 2009; Balaji, 2009; Lee and Hwan, 2005; Athanassopoulos and Iliakopoulos, 2003; Parasuraman et al., 1988). Yee et al. (2010) found that service quality has a positive influence on customer satisfaction.

On the other hand, Bitner (1990) and Bolton and Drew (1991) note that customer satisfaction is a prerequisite for service quality. Beerliet al. (2004) supported this finding and mentioned that a possible explanation is that the satisfaction construct supposes an evaluative judgment of the value received by the customer.

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2.16.1 The concept of Service Quality

Parasuraman et al., (1988) defined service quality as "the global evaluation or attitude of overall excellence of services". So, service quality is the difference between customer's perception and perceptions of services delivered by service firms or as "the customer's satisfaction or dissatisfaction formed by their experience of purchase and use of the service" (Gronroos, 1984 and Parasuraman et al., 1988). Also, Nitecki, et al., (2000) defined service quality in terms of "meeting or exceeding customer expectations or as the expectations of service" Oliver (1977) reported that service quality is a causal antecedent of customer satisfaction, due to the fact that service quality is viewed to be at the transactional level and satisfaction is seen to be an attitude. Dabhalker et al., (1996) and Zeithaml et al., (1996) reported that the service quality divisions are related to overall service quality and/or customer satisfaction. Fornell et al., (1996) opined that there is a casual relationship between service quality and satisfaction and that the perceptions of service quality affect the feelings of satisfaction and/or dissatisfaction by the customer.

Most experienced and successful business units in the electronic trade have realised that their success or failure does not merely depend on their presence on the web or low prices, but also on the transfer of high-quality electronic services (Carna et al., 2009). Electronic quality can be described as customers' evaluation of the process and the result of interactions with online sellers. Ribinik (2004) argues that electronic quality includes five dimensions, including ease of usage, website design, ordering, responding and trust. Service quality is also defined as a customer's belief or attitude concerning the rate of service superiority in the banking environment (Ward et al., 2009).

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Nowadays, with the increased competition, service quality has become a popular area of academic research and has been acknowledged as an observant competitive advantage and supporting satisfying relationships with customers (Zeithmal, 2000).

Service quality is concepts that has aroused substantial interest and argue in research. There are difficulties defining and measuring it with no overall consensus emerging on either (Wisniewski, 2001). Service quality has been defined as the overall assessment of a service by the customers (Eshghi*et al.,* 2008), while other studies defined it as the extent to which a service meets customer's needs or expectations. Service is assumed to be quality when it consistently conforms to customer expectations (Asubonteng *et al.,* 1996; Wisniewski and Donnelly, 1996). Parasuraman et al. (1985) argues that service quality is the measure of service delivered as against expected service performance.

Service quality is defined as customer perception of how does a service meets or exceeds their expectations (Czepiel, 1990). Several practitioners define service quality as the difference between customer's expectations for the service encounter and the perceptions of the service received (Munusamy *et al.,* 2010). Customer expectation and perception are the two main ingredients in service quality. Customers judge quality as "low" if performance (experience) does not meet expectation and quality as "high" when performance exceeds expectations according to Oliver (1980).

Service quality consists of five dimensions: tangibles (appearance of physical facilities, equipment, personnel and written materials), reliability (ability to perform the promised service

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dependably and accurately), responsiveness (willingness to help customers and provide prompt service), assurance (knowledge and courtesy of employees and their ability to inspire trust and confidence), and empathy (caring and individual attention the firm provides its customers). Reliability is considered the vital core of service quality. Other dimensions will matter to customers only if a service is reliable, because those dimensions cannot compensate for unreliable service delivery (Berry *et al.,* 1994).

Perceived quality has been defined as a form of attitude, related but not equal to satisfaction, and fallout from a consumption of expectations with perceptions of performance. Consequently, having an improved understanding of consumers" attitudes will facilitate knowing how they perceive service quality in banking operations (Parasuraman *et al.,* 1988).

In the changing banking scenario of 21st century, the banks had to have a vital identity to provide excellent services. Banks nowadays have to be of world-class standard, committed to excellence in customers "satisfaction, and to play a major role in the growing and diversifying financial sector (Balachandran, 2005). There has been a remarkable change in the way of banking in the last few years. Customers have also accurately demanded globally quality services from banks. With various choices available, customers are not willing to put up with anything less than the best. Banks have recognized the need to meet customers" aspirations. Consequently, service quality is a critical motivating force to drive the bank up in the high technology ladder.

The soundness of banking sector is of a dominant importance because it is a main component of the Egyptian financial sector, and as efficiency in the utilization of the savings of the depositors

and the banking sector resources is essential to improve the growth rate of the existent sectors of the economy (Central Bank, 2003). The purpose of banking operations be supposed to be to progress the quality of life for the overall society not just the maximization of shareholders' wealth.

2.16.2 Dimension of Service Quality

Parasuraman et al., (1988) studied four different types of services including banking industry, credit card companies, motor repair shops and long distance telecommunication companies and the results show that service quality had ten (10) dimensions such as reliability, responsiveness, competence, access, courtesy, communication, creditability, security, understanding/knowing the customers and tangibility. However, in 1988, these ten dimensions were cut down to five namely, tangibility, reliability, responsiveness, assurance and empathy. Parasuraman et al., (1988) five dimensions of service quality (SERVQUAL).

1. Reliability: It is the ability to perform the promised services dependably and accurately. The elements of reliability are speed, willingness to respond, accuracy and dependability.

2. Responsiveness: It is the willingness to help customers, and provide prompt service. Its elements include that of reliability.

3. Assurance: It is the knowledge and courtesy of employees and their ability to convey trust and confidence. The dimension of assurance may be measured using elements of knowledge trained professional, communications and caring for the customer.

4. Empathy: It is the provision of caring individualized attention to customers. Its elements are the same as assurance.

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5. Tangibles: This dimension includes the appearance of physical facilities, equipment personnel and communication materials used to communicate with customers. Elements within the tangibles dimension are cleanliness, space, atmosphere, appearance of server and location.

Zeithaml et la., (1990) proposed a comprehensive perception of quality assessment and claimed that there are other factors apart from the dimension of Parasuraman et al., (1988). These dimensions of service quality according to him are;

1. Access: It includes how easy it is to come into contact with the supplier. This is where position, opening hours, supplier availability and other technical facilities belong.

2. Communication: It is the ability to communicate in an understandable way that is natural to customer.

3. Credibility: This refers to the ability of being able to trust suppliers.

4. Courtesy: This refers to the suppliers' behaviour. Examples are politeness and kindness.

However, Parasuraman et al., (1988) assurance dimension is a combination of credibility and courtesy dimension of Zeithaml et al, (1990).

2.16.3 Classification of Service Quality

Lewis (1987) suggested that service quality can be classified as:

1. Essential subsidiary;

Essential refers to the service offered and subsidiary includes factors such as accessibility, convenience of location, availability, timing and flexibility, as well as interactions with the service provider and other customer.

2. The core (Contractual) of the service.

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The core or the outcome quality refers to what is delivered to the customer.

3. The related (customer-employee) relationship of the service.

This refers to process quality. It is how the service quality is delivered which is the most important element for most services (Gronroose, 1985; McDaugall & Levesque, 2000 and Parasuraman et al., 1988). McDougall and Levesque (2000) in their direct approach investigation on four services firms (Dentist Clinics automobile shop, restaurant, and haircut salon). He demonstrated that both core rational service quality classes have significant impact on customer satisfaction. Heskett et al., (1997) conducted studies for several service providers such as airline, restaurants etc, and reported that service quality solely defined as rational quality, has consistent effect on satisfaction and is regarded as key factor in delivering customer satisfaction. Furthermore, Sureschander et al., (2001) identified five factors of service quality which were core service or service product, human element of service delivery, systematization of service delivery, tangibles of services and social responsibility.

2.16.4 Benefits of Service Quality.

The benefits of service quality include;

1. Retaining customer:

High quality builds loyal customers and creates positive word of mouth. It is an important factor in the purchase decision. It determines customer satisfaction, which affects business and word-of-mouth. Studies have shown that it costs four to six times as much to create a customer as it does to maintain an existing one.

 2. Avoidance of price competition:

A restaurant with a reputation for good quality food and service has a much stronger competitive position than one with a reputation for inconsistent or poor quality. The restaurant with good image can count on positive word-of-mouth of its satisfied customers.

3. Retention of good employees:

Employees appreciate working in operations that are well run and produce high quality products. When an operation has good quality, it can retain good employees, recruiting is easier and training costs are reduced.

4. Reduction of costs:

a. Internal costs: They are those costs that are associated with correcting problems discovered by firm before the product reaches the customers.

b. External costs: They are those costs associated with errors that the customers experience.

c. Quality system: This cost is viewed as investment in the future of the company to ensure that customers return.
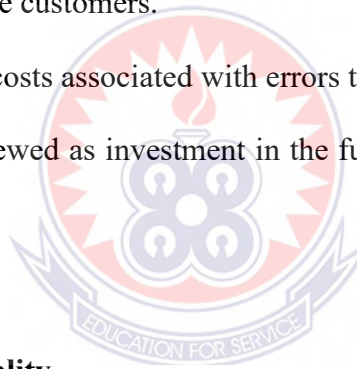
2.16.5 Categories of Service Quality

There are three (3) categories of service quality. These include;

1. Technical quality: This refers to what the customer is left with after the customer-employee interactions have been completed.

2. Functional quality: It is the process of delivering the same service or product.

3. Societal (ethical) quality: It is a credence quality, it cannot be evaluated by the customer before purpose and is often impossible to evaluate after purchase.

2.16.6. Service Quality Model

Among the models for measuring service quality, the most acknowledged and applied model in diversity of industries is the SERVQUAL (service quality) model developed by Parasuraman et al. The SERVQUAL model of Parasuraman et al. (1988) proposed a five dimensional construct of perceived service quality tangibles, reliability, responsiveness, assurance and empathy as the instruments for measuring service quality (Parasuramanet el al., 1988; Zeithamlet *et al.,* 1990).

Reliability is defined as the ability to depend on. Handling customers' services problems; performing services right the first time; provide services at the promised time and maintaining error-free record. Furthermore, they stated reliability as the most important factor in conventional service (Parasuraman et al., 1988). Reliability also consists of accurate order fulfillment; accurate record; accurate quote; accurate in billing; accurate calculation of commissions; keep services promise. He also mentioned that reliability is the most important factor in banking services (Yang et al., 2004).

Responsiveness is defined as the willingness or readiness of employees to provide service. It involves timeliness of services (Parasuraman *et al.,* 1985). It is also involves understanding needs and wants of the customers, convenient operating hours, individual attention given by the staff, attention to problems and customers" safety in their transaction (Kumar *et al.*, 2009).

Empathy Parasuraman et al. (1985) defined empathy as the caring and individual attention the firm provides its customers. It involves giving customers individual attention and employees who understand the needs of their customers and convenience business hours. Ananth et al.

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(2011) referred to empathy in their study on private sector banks as giving individual attention; convenient operating hours; giving personal attention; best interest in heart and understand customer's specific needs.

Assurance: Parasuraman et al. (1985) defined assurance as knowledge and courtesy of employees and their ability to inspire trust and confidence. According to Sadek et al. (2010), in British banks assurance means the polite and friendly staff, provision of financial advice, interior comfort, eases of access to account information and knowledgeable and experienced management team.

Tangibility: Parasuraman et al. (1985) defined tangibility as the appearance of physical facilities, equipment, personnel, and written materials. Ananth et al. (2011) refered to tangibility in their study of private sector banks as modern looking equipment, physical facility, employees are well dressed and materials are visually appealing.

2.17 Trust

Confidence in another party's capability and its performance based on expected ethical principles determines the level of trust (Errol et al., 2005). For this reason, electronic trust is the measure of customers' trust in online transactions (Reichheld et al., 2000). Stewart (1999) claims that the failure of electronic banking may be due to the fact that customers lack trust in electronic channels. Customers' trust is therefore important if their loyalty is to be secured. Some researchers have argued that both habit and reputation could influence purchase repetition by customers and the consistency of their relationship with the organisation.

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The acquisition of the required skills in using a website by a customer in e-banking could lead to habit formation (Yee et al., 2010). Habit includes all kinds of phenomena and representation in terms of spiritual activities, as well as material and physical demonstrations. On the other hand, they all have something in common as all demonstrations first appear to be incidental, voluntary or involuntary and become habits due to repetition and various comparative fluctuations. Customers then have an active involuntary condition and are unaware of the origin of influence, physically or spiritually; habits are thus likely to be formed (Ordoubari, 1991).

2.18. Customer Satisfaction

In the highly competitive business market, mostly firms concentrate on their efforts on maintain a loyal customer base. The strategies of most retail banks aim to enhance customer satisfaction and loyalty through quality service provision. Devlin (2001) noted that "customers perceive very little difference in the services offered by retail banks and any new offering is quickly matched by competitors." Zaim et al. (2010) explains that tangibility, reliability and understanding are key factor for customer satisfaction, whereas responsiveness and assurance are also important factors (Mengi 2009). Kumar et al. (2010) and Lai (2004) found that assurance, empathy and tangibility are also important factors.

Researchers have identified various determinants of customer satisfaction in the retail banking sector. Levesque and McDougall (1996) argue that competitive interest rates are one of the important determinants of customer satisfaction in the retail banking sector. It was found that a good "employee-customer" relationship can increase satisfaction levels. Finally, it was concluded that the competitiveness and convenience of the banks are the two important

determinants of customer satisfaction. On the other hand, Jamal and Naser (2003) found that convenience and competitiveness are not critical factors for all genders, ages and income groups. Literature establishes that customer satisfaction is a key to long-term business success (Zeithami *et al.,* 1996). To protect/gain market shares, organizations need to outperform competitors by offering high quality product or service to ensure satisfaction of customers (Tsoukatos and Rand, 2006). Banks need to understand customers" service requirements and how it impact on service delivery and customers" attitudes (Gerrard and Cunningham, 2001), for a small increase of customer satisfaction can to customer loyalty and retention (Bowen and Chen, 2001).

With better understanding of customers' perceptions, companies can determine the actions required to meet the customers' needs. They can identify their own strengths and weaknesses, where they stand in comparison to their competitors, chart out paths for future progress and improvement (Magesh, 2010). In the banking industry, a key element of customer satisfaction is the nature of the relationship between the customer and the provider of the products and services. Thus, both product and service quality are commonly noted as a critical prerequisite for satisfying and retaining valued customers (Muslim and Isa, 2005). It is indeed true that delivery of high-service quality to customers offers firms an opportunity to differentiate themselves in competitive markets (Karatepe *et al.,* 2005).

2.18.1 The Concept of Customer Satisfaction

It is well known that no business can exist or remain relevant in the market place without customers. Thus it is imperative for firms to imbibe the concept of customer satisfaction in their operations. Customer satisfaction is the degree to which customer expectations of a product or

service are met or exceeded. Customer satisfaction means that the customers' needs are met, product and services are satisfactory, and customers' experience is positive (Friday and Colts, 1995; Gitomer, 1998). Firms are required to offer product/services that meet or surpass consumers' expectations. This in turn will lead to customer satisfaction. Customer satisfaction is a post choice evaluation judgment concerning a specific purchase decision. Customer satisfaction is the necessary foundation for firms to retain the existing customers. The customers who are unsatisfied with the received products/services would not be expected to have long run relationships with the firm (Guo, Xiao & Tang, 2009 and Lin & Wu, 2011). In the buyer behavior model developed by Howard and Sheth (1969), consumer satisfaction is defined as the point at which expectation and reality coincide. The concept of satisfaction embraces not only what is gained in the use of a product, but also consumers feeling about the effectiveness of their own decision process. Customer satisfaction is the level of a person's perceived performance or outcome in relation to his/her own expectation.

2.18.2 Customer Satisfaction and Customer Loyalty

Khan (2012) in his research work concluded that customer satisfaction has significant impact on customer loyalty. Similarly, like Kim and Yoon (2004) they give evidence that the source of customer loyalty is customer satisfaction. Yen and Gwinner (2003) find that satisfaction has positive and significant effect on customer loyalty. Lin and Wang (2006) also examine that satisfaction have significant and positive impact on loyalty. An empirical research conducted by Bassey, Okon & Umorok (2011) on effective customer service: A tool for client retention among stock broking firms in Nigeria revealed that satisfied customer would promote more loyalty behavior, and opined amongst others that customer satisfaction has direct impact on loyalty.

Customer loyalty is the customer attitude and behavior to prefer one brand over all competitor ones, whether? Due to satisfaction with the product or services. It encourages consumers to shop more consistently. (Peiguss, 2012) Customer loyalty is defined as the willingness of any given customer to purchase the company's goods or services over competitive ones available in the marketplace. (Singh, Khan, 2012). Due to the fact that loyalty is the result of developing past positive experiences with the customers and having them return to the company various times due to these experiences, customers will return again and again to do business with the company; regardless of whether it may not have the best product, price or service delivery (Ghavami & Olyaei, 2006).

Zikmund, (2002) demonstrate that loyalty is more than a repetition of behavior. Customers can demonstrate loyalty to price, brand, company, and other customers. However, Customer satisfactions important to any company and it affect clients repeatedly coming back to the company due to its service. This expects that the crucial factors affected customer loyalty are customer satisfaction, emotional bonding, trust, choice reduction/habit, and company history. (Ghavami & Olyaei, 2006).Therefore, customer satisfaction with a company's products or services could be considered the key to a company's success and long-term competitiveness.

Customer satisfaction is viewed as a central determinant of customer retention. (Peiguss, 2012) Singh, & Khan, 2012) pointed out that satisfaction is not enough because less than half of the company satisfied customers will come back. The company needs to transfer satisfied customer to loyal customer. It's so important because it costs so much to influence customers to buy and so little to induce a repurchase. Customer loyalty is a result of a positive emotional experience,

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physical attribute-based satisfaction and perceived value of an experience, which includes the product or services.

Singh and Sirdeshmukh (2000) recommended customer loyalty as "the market place currency of the twenty-first century". Ndubisi (2005) and Pfeifer (2005) noted that the cost of serving a loyal customer is five or six times less than that of a new customer, which reflects the importance of customer loyalty. Walsh et al. (2005) noted that it is better to deal with existing customers before acquiring new customers. Gee et al. (2008) describe the advantages of customer loyalty as follows:

1. the cost of service of a loyal customer is lower than new customers;

2. they will give higher costs for a combination of products;

3. for a company, a loyal customer will act as a marketing agent and provide positive word of mouth for the company.

Foss and Stone (2001) noted that customer loyalty relates to a customer's thoughts and intended actions. Many customer loyalty experts agree that loyalty is best defined as a state of mind, a set of attitudes, beliefs and desires. Loyalty is developed by approaches that highlight and build up a positive state of mind and the associated behaviours. The exchange of information is one of the keys of loyalty, and provides a critical bridge between state of mind and behaviour.

Loyal customers are more likely to give feedback to the business as they trust it and expect it to use the information with good judgment and to their benefits. Managing loyalty is essential as it means not only managing behavior but also administering a state of mind. Dick and Basu (1994) and Bloemer et al. (1998) stated that most research on customer loyalty has focused on brand loyalty. Conversely, a limited amount of research on customer loyalty has focused on service

loyalty. Bloemer et al. (1998) argued that the findings from the field of brand loyalty could not be generalised to service loyalty for the following reasons:

1. Service loyalty is dependent on the improvement of interpersonal relationships as opposed to loyalty with tangible products;

2. In case of services, the pressure of apparent risk is greater;

3. Intangible attributes such as confidence and reliability are the key factors to sustain customer loyalty in the service perspective (Dick and Basu, 1994).

Dick and Basu (1994) described the two dimensions of loyalty (relative attitude and repeat patronage behaviour) and four categories of loyalty: loyalty (positive relative attitude, high repeat patronage), latent loyalty (positive relative attitude, but low repeat patronage), spurious loyalty (low relative attitude, high repeat patronage), and no loyalty (low on both dimensions). Salegna and Goodwin (2005) noted that if a customer has a poor attitude within the industry, an organisation that scores just better than "poor" could extract a positive customer "relative attitude" score and high repeat patronage.

Citing Reichheld (2003), Palmer et al. (2007) recommended that in addition to measuring repurchasing patterns, managers should also consider the possibility of a customer recommending an organisation's product or service to another customer. The measure of the level of attitudinal customer loyalty is the readiness to recommend. Levesque and McDougall (1996) noted that by increasing loyalty, a retail bank:

1. can reduce its servicing costs (customers do not open or close their accounts);

2. Customers' needs are fulfilled and they gain an understanding of financial affairs;

3. will have an opportunity to sell on hand and new products and services.

2.19 Customer Satisfaction and Patronage

According to Dominici & Guzzo (2010) research on the topic of guest satisfaction, which translates into the consideration of whether or not customers will return to a hotel or advice it to other tourists, is pivotal to the success of the hospitality business. Neglecting to pay attention to those hotel attributes considered most important by guests leads to negative evaluations of the hotel, thus restricting the chance of repeat patronage. A customer that derives satisfaction from a firm's product/service tends to patronize such offerings.

2.20 Customer Ssatisfaction and Retention

Customer retention is the continuity of the business relations between the customer and company. Customer retention refers to customer's stated continuation of a business relationship with the firm (Gerpott, Rams & Schindler, 2001; Timothy, Bruce, Lerzan, Tor & Jaw, 2007; and Awara, 2010). Numerous metrics have been employed by researchers, and firms to measure customer retention; for instance, customer recommendation intention (Reichheld, 1996), share of the wallet (Jones and Earl, 1995), customer repurchase intention and (Chandon, Morwitz, Renartz, 2005). Of all these metrics, customer satisfaction is by far the most commonly used and best (Reichheld, 1996). Researches have shown a relationship between customer satisfaction and client retention (Oyenihi & Abiodun, 2008; Jones & Earl, 1995 and Timothy et al., 2007).

According to Kotler "The key to customer retention is customer satisfaction". Customer retention means the company keeps its customers by providing a great customer experience.

Customer retention is the key to healthy business growth. Loyalty can help the business to retain most valuable customers.

Loyalty reflects relationship development and retention reflects relationship continuity. Customer retention is a crucial component of customer relationship. The main aspect of customer retention is the emotions evoked by the customer experience combined with the organization's strong reputation. Without the emotional bond which is essential to retain customers, customer loyalty will be impossible. Customer retention is important to most companies because the cost of acquiring a new customer is greater than the cost of maintaining a relationship with a current customer". (Singh & Imran 2012) Retention programs aim to turn the occasional customer into a frequent customer; they would be more likely to recommend the business to their friends and relatives.

They also raise the probability of changing customers from being a one or two item purchaser to purchasing several products. (Rocking, 2005) Because the high cost of losing customers is rising every day, companies seek new techniques to acquire, and retain their loyal customers. Service has long been an important factor in customer retention, and new research suggests its role is more critical than ever and will continue to grow in the future (Potter-Brotman Jennifer, 1994). Customer retention earns the business a good reputation and goodwill in a competitive market. (Singh, & Khan, 2012). Customer retention is all about the customers and their experience.

Customer relationship management is the practice of analyzing and using marketing and leveraging communication technologies to determine corporate practices and methods that

maximize the life time value of each customer to the firm (Reinartz, 2004). The fact that customer retention is widely accepted as it is central objectives in relationship marketing. Because customer retention focuses on repeated patronage of a marketer or supplier, it is closely related to repeat purchasing. (Hennig & Klee, 1997).

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter provides detailed description of the methodology that were used in the study which included the population and setting of the study, sample and sampling procedures, research designed, research instrument, and data collection procedure. It was also looked at the method of data analysis that were used to find out the training needs of informal motor vehicle garages in Tamale Metropolis.

3.2 Research Design

The study used survey research design with quantitative and qualitative approach. Survey research designed were procedures in quantitative research in which investigators administer a survey to a sample or to the entire population of people to describe the attitudes, opinions, behaviours, or characteristics of the population (creswell, 2012). Survey used a standard set of questions to get a broad overview of a group's opinions, attitudes self-reported behaviours and demographic and background information (Onley &Barnes, 2008).

3.3 Population and Setting

The population of the study comprised staff of informal motor vehicles garages in Tamale Metropolis. Informal motor vehicles garages were used in this study because they were the people who are working on non computerized vehicles and the modern computerized vehicles in the motor vehicle garages and can prove the actual information of the garage, however

customers' were also used in this study to assess customer relations, service quality and customer service patronage of the informal garage mechanics in the industry.

3.4 Sample Size

The informal motor vehicle garages have scattered all over Tamale Metropolis for these reason it is highly impossible to be able to administer questionnaires to the share volume of the informal motor vehicle garages in the entire Metropolis. Therefore, it became necessary to sample 100 garages out of 875 garages which is representative from the entire population.

Questionnaires were administered to 100 respondents, to informal garage mechanics and 100 to car owners and drivers as customers of the garages. These was done to ensure that, the population chosen represents the targeted groups to provide vital information that can be subjected to analysis to draw conclusions.

3.5 Sample and Sampling Technique

Purposive sample techniques were used to select both customers of motor vehicle garages and managers of informal motor vehicles garages considering the research topic. Systematic sampling techniques were used to select customers of automobile garages.

Simple random sampling techniques were employed to administered questionnaires to car owners and drivers as respondents in the Metropolis to represent the population of the customers. The researcher and research assistant administered the questionnaires to the respondents. The purposive sampling techniques were used to administer to the manager and senior mechanics in their various garages in Tamale Metropolis.

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3.6 Research Instruments

After a careful reviewed of appropriate literature, questionnaires were chosen as the instrument to collect data to answer the questions set for this study. Questionnaires were choosing because it took less time to administer them and also ensure the anonymity of respondents (Fraenkel & Wallen, 2003). Questionnaire enabled the researcher to collect potential information about motor vehicle garage manager's knowledge and skills. A set questionnaires of customers were also designed to collect data about customers in Tamale Metropolis.

The questionnaires consist of close and open end and rating scale type. The open and closed-ended questions enable the researchers to know the demographic of the garage staff and customers while the rating scale type of questions probe a little deeper and explore the knowledge and skills, customer relations and quality service of informal motor vehicle garages in Tamale Metropolis.

Questionnaires were developed to both managers and car owners and drivers, in the metropolis which was self-administer questionnaires. The structured questionnaires consist of close format, open-ended format and rating scale type of questions. The questionnaires were based on the potential assessment of knowledge and skills of garage managers and different set of questionnaires were designed for car owners and drivers' in Tamale Metropolis.

3.7 Data Collection Procedures

To achieve the main objectives of this study, the researcher contacted the executives of the garages association in the region and within metropolis and managers of the various garages

were not left out and they were told the intended study. With the consent of these groups questionnaires were administered to the respondents personally by the researchers. These were ensured that, there is improvement in the collection and responded rate. The questionnaires were collected as soon as the respondents completed them. These enable the researchers to obtained 100% responded rate. There is the need to use systematic methods and instruments to collect data, since the appropriateness of this will go a long way to determine the validity and credibility of the findings.

3.8 Data Analysis

The responses from the questionnaires items were coded and analysed through the use of Statistical Package for Social Science (SPSS) software version 16.0 and Microsoft excel windows 7. The SPSS software and Microsoft excel were used for the data analysis because it is a user friendly and did most of the analysis of the quantitative data for the researcher. The Cronbachα were being used to analysis the reliability of the questionnaires. Pearson correlation and regression were also used to reflect the degree of linear relationship between two variables and determines the strength of the linear relationship between the variables. Descriptive statistics such as percentage scores were used to calculate the participants' demographic data.

The data entries were done by the researcher in order to check the accuracy of the data. Data were cleaned before running any analysis. Cleaning the data helped the researcher to get rid of errors that could result from coding, recording, missing information, influential cases or outliers.

3.9 Reliability and Validity

Reliability according to William, (2006), refers to consistency or 'dependability' of the measurement or the extent to which an instrument measures the same way each time it is used under the same condition with the same subjects. Validity on the other hand determines whether the research truly measures that which it was intended to measure or how truthful the research results are (Joppe, 2000).

To check for the validity of the instrument, the researcher allows a senior lecturer who is an expert in the field of research from Wood Technology Department in the University of Education, Winneba (UEW) Kumasi campus to evaluate the questionnaires for content and constructed as well as face validity. After the feedback received from the lecture, the necessary changes to the content of the questionnaires were made. Later, the approved questionnaires were pilot-tested to establish not only its reliability but also to identify defective items, and ensure that the instruments were clearly understood by respondents.

However, descriptive statistics, such as 'Cronbach' Alpha(α) were used to analysis the reliability of the questionnaires, Pearson rank correlation were used to validates the correlation between the variables to find out whether it has significance for informal garage mechanics TNs. and regression analysis were also used to analysis the variables of the questionnaires. All these procedures were succeed by the Statistical Package for Social Science (SPSS version 16) computer package which were used to analysis the quantifiable answers obtained from the questionnaires.

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CHAPTER FOUR

RESULTS AND DISCUSSION

</div>

4.1 Introduction
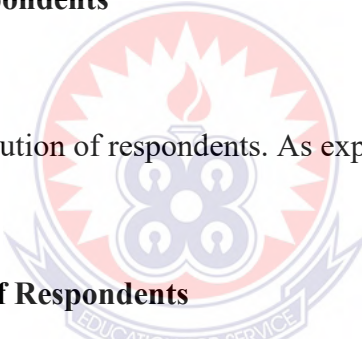
The results and discussions of the research findings are presented in this chapter. The research results were discussed under two main parts. The first part analysed the demographic profiles of the respondents whereas the second part presents and analysis of results and discussion of the research questions respectively. As a quantitative study each research question was guided by its statistical outcomes.

4.2 Demographic Profile of Respondents

4.2.1 Mechanics

Table 4.1 shows the gender distribution of respondents. As expected, 93.5% are male and only 6.5 are female.

Table 4.1 Gender Distribution of Respondents

Gender	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Male	116	93.5	93.5	93.5
Female	8	6.5	6.5	100.0
Total	124	100.0	100.0	

Source: Field survey, 2018

Regarding respondents age, the results are shown in Table 4.2. Majority, 33.1% of the respondents are 31-40 years, 28.2% are 21-30 years old, 23.4% are between 41 and 50 years, and the rest are 8.1% between 51-60 and 4.0% below 20 years. Only 3.2% are above 60 years.

Table 4.2 Age Distribution of Respondents

Age bracket	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
20 below	5	4.0	4.0	4.0
21-30	35	28.2	28.2	32.3
31-40	41	33.1	33.1	65.3
41-50	29	23.4	23.4	88.7
51-60	10	8.1	8.1	96.8
61and above	4	3.2	3.2	100.0
Total	**124**	**100.0**	**100.0**	

Source: Field survey, 2018

From the results in Table 4.2, it can be deduced that, 65.3% of the respondents are 40 years and below. This shows that majority of the craft mechanics are the youth.

Regarding the respondents' educational level, the distribution is shown in Table 4.3. A total of 29% of the respondents have technical education, 28.2% have tertiary education and 27.4% have no education.

Table 4.3 Educational Level of Respondents

Educational level	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
No formal education	34	27.4	27.4	27.4
Technical	36	29.0	29.0	56.5
Secondary	19	15.3	15.3	71.8
Tertiary	35	28.2	28.2	100.0
Total	**124**	**100.0**	**100.0**	

Source: Field survey, 2018

From the results in Table 4.3, it can be deduced that, significant number of the respondents do not have higher or formal education. A total of 55.4% have no formal education or technical education.

On the issue of the rank of respondents, the results are shown in Table 4.4. Majority, 70.2% are senior mechanics and the rest, 29.8% are manager/master mechanics.

Table 4.4 Rank of respondents

Rank	Frequency	Percent (%)
Manager/Master mechanic	37	29.8
Senior mechanic	87	70.2
Total	**124**	**100.0**

Source: Field survey, 2018

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On the issue of the respondents' working experience, the results are shown in Table 4.5 below. 24.2% have worked between 9 to 11 years, 21.8% each worked between 12 to 15 years and above 15 years respectively. 15.3% have 6-8 years' experience, 12.1% have 3-5 years' experience. The rest, 4.8% have up to two years' experience.

Table 4.5 Working Experience

Working experience	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
0-2yrs.	6	4.8	4.8	4.8
3-5yrs.	15	12.1	12.1	16.9
6-8yrs.	19	15.3	15.3	32.3
9-11yrs.	30	24.2	24.2	56.5
12-15yrs.	27	21.8	21.8	78.2
16 and above	27	21.8	21.8	100.0
Total	**124**	**100.0**	**100.0**	

Source: Field survey, 2018

From the results in the Table 4.5, these craft men have substantial experience in their business. If most of the respondents are under 40 years as shown in Table 4.2, and most already have experience of more than 12 years as shown in Table 4.5, then most can work more than 30 years under 60 years.

4.2.2 Customers

Table 4.6 shows the gender distribution of customers as respondents. A total of 86.5% are male

and only 13.5% are female.

Table 4.6 Gender Distribution of Customers

Gender	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Male	90	86.5	86.5	86.5
female	14	13.5	13.5	100.0
Total	**101**	**100.0**	**100.0**	

Source: Field survey, 2018

With respect to respondents age, the results shown in Table 4.6. Majority, 32.7% of the

respondents are 31-40 years, 28.8% are 41-50 years old and least is below 20 years, only 23.1%.

Table 4.7 Age Distribution of Respondents

Age	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent(%)
20 below	1	1.0	1.0	1.0
21-30	21	20.2	20.2	21.2
31-40	34	32.7	32.7	53.9
41-50	30	28.8	28.8	82.7
51-60	13	12.5	12.5	95.2
61 and above	5	4.8	4.8	100.0
Total	**104**	**100.0**	**100.0**	

Source: Field survey, 2018

Table 4.8 present the customers' job status. A total of 38.5% are into others (business persons, nurses, etc.), administrators is 29.2%.

Table 4.8 Job Status of Respondent

Job Status	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Lecturer	11	16.9	16.9	16.9
Administrator	19	29.2	29.2	46.2
Driver	5	7.7	7.7	53.8
Teacher	5	7.7	7.7	61.5
Others	25	38.5	38.5	100.0
Total	**65**	**100.0**	**100.0**	

Source: Field survey, 2018

Regarding the respondents' educational level, the distribution is shown in Table 4.8. A total of 64.4% of the respondents have tertiary education, 28.2% have and 27.4% have no education.

Table 4.9 Educational Level of Respondents

Educational Level	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
No formal education	16	15.4	15.8	15.8
Technical	13	12.5	12.9	28.7
Secondary	10	9.6	6.9	35.6
Tertiary	65	62.5	64.4	100.0
Total	**104**	**100.0**	**100.0**	

Source: Field survey, 2018

Table 4.10, presents the frequency distribution of the respondent's garage experience. From the table, majority, 58(57.4%) have 0-10 years' experience, 26(25.7%) have 11-21 years' experience and only 3(3%) have more than 44 years' experience.

Table 4.10 Garage Experience of Respondents

Garage Experience	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
0-10yrs.	58	57.4	57.4	57.4
11-21yrs.	26	25.7	25.7	83.2
22-32yrs.	9	8.9	8.9	92.1
33-43yrs.	5	5.0	5.0	97.0
44 and above	3	3.0	3.0	100.0
Total	101	97.1	100.0	

Source: Field survey, 2018

4.3 Analysis of Results

4.3.1 Reliability Test

From Table 4.11, overall Cronbach's Alpha is 0.836. This shows a clear indication of very high and strong internal consistency among the variables. Essentially this means that respondents who selected high scores for one item also tended to select high scores for the others items of similar questioning. Similarly, respondents who selected low scores for one item tended to select low scores for the other items. We can therefore proceed to conduct our detailed analysis on this data set.

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Table 4.11: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.836	0.866	36

Source: Field survey, 2018

As indicated in table 4.11 above, the test result could be described as wonderful in accordance with Kaiser- Meyer-Ohlin (KMO) theory as discussed in the research methodology in the previous chapter of this study.

Table 4.12 is the summary statistics of the reliability test. The number of items involved is 36. Variance is 0.06 and the mean is 0.152.

Table 4.12 Summary Statistics of the Reliability

Variable	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Inter-Item Correlations	.152	-.430	.867	1.297	-2.015	.060	36

Source: Field survey, 2018

4.3.1 Knowledge and skills of Vehicle Master Craftsmen

To answer the above question, the researcher broke the knowledge into four areas.

4.3.1.1 Engine

The factor analysis program generates a variety of tables depending on which options you have chosen. The first table, Table 4.13 includes Descriptive Statistics for each variable and the

Analyses N, which in this case are 124. The mean score of each variable is shown ranging from 4.3 to 4.8. The corresponding percentages are given as well.

Table 4.13 Descriptive Statistics

Variable	Mean	Std. Deviation	Analysis N
ST6 I have knowledge and skills to dismantle an engine.	4.75	.435	124
ST7 I have knowledge and skills to assemble an engine.	4.79	.409	124
ST8 I have knowledge and skills to time an engine.	4.75	.453	124
ST9 I have knowledge and skills to disassemble and assemble cylinder head valves.	4.77	.474	124
ST10 I have knowledge and skills for valves adjustment.	4.80	.403	124
ST11 I have knowledge and skills to diagnose, service and repair cooling system.	4.63	.502	124
ST12 I have knowledge and skills to time starter motor.	4.47	.703	124
ST13 I have knowledge and skills to time fuel injection pump.	4.62	.619	124
ST14 I have knowledge and skills to diagnose, service and repair ignition system.	4.30	1.012	124

Source: Field survey, 2018

From the Table 4.13, it follows that the mean score of each, ST6 to ST13 is each approximately 5 and only ST14 is approximately 4. The standard deviations are relatively small and fairly the same.

Table 4.14, indicates how each question is associated (correlated) with each of the other questions. The correlation matrix showing how each of the 9 items is associated with each of the other 8. Some of the correlations are high as 0.846 and some are low as 0.294. Relatively high correlations indicate that two items are associated and will probably be grouped together by the factor analysis. Items correlate perfectly (1.0) with themselves. One assumption is that

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the determinant (located under the correlation matrix) should be more than .0001. Here, it is .001 so this assumption is met.

Table 4.14 Correlation Matrix[a]

Variable		E1	E2	E3	E4	E5	E6	E7	E8	E9
	ST6 I have knowledge and skills to dismantle an engine.	1.00	.846	.629	.591	.545	.503	.359	.460	.374
	ST7 I have knowledge and skills to assemble an engine.	.846	1.00	.768	.676	.679	.490	.316	.358	.349
	ST8 I have knowledge and skills to time an engine.	.629	.768	1.00	.643	.612	.483	.395	.326	.412
	ST9 I have knowledge and skills to disassemble and assemble cylinder head valves.	.591	.676	.643	1.00	.696	.499	.417	.260	.294
Correl.	ST10 I have knowledge and skills for valves adjustment.	.545	.679	.612	.696	1.00	.552	.450	.343	.428
	ST11 I have knowledge and skills to diagnose, service and repair cooling system.	.503	.490	.483	.499	.552	1.00	.657	.512	.604
	ST12 I have knowledge and skills to time starter motor.	.359	.316	.395	.417	.450	.657	1.00	.727	.670
	ST13 I have knowledge and skills to time fuel injection pump.	.460	.358	.326	.260	.343	.512	.727	1.00	.597
	ST14 I have knowledge and skills to diagnose, service and repair ignition system.	.374	.349	.412	.294	.428	.604	.670	.597	1.00

a. Determinant = .001

Source: Field survey, 2018

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From Table 4.14, all the variable correlates positively and statistically significant since the alpha value of 0.05 is less than 0.001.

Table 4.15, illustrates the initial communalities represent the relation between the variable and all other variables before rotation. If many or most communalities are low (< .30), a small sample size is more likely to distort results. In this case all the communalities are above 0.3 which is quite good.

Table 4.15 Communalities

Variable	Initial	Extraction
ST6 I have knowledge and skills to dismantle an engine.	1.000	.712
ST7 I have knowledge and skills to assemble an engine.	1.000	.871
ST8 I have knowledge and skills to time an engine.	1.000	.725
ST9 I have knowledge and skills to disassemble and assemble cylinder head valves.	1.000	.709
ST10 I have knowledge and skills for valves adjustment.	1.000	.676
ST11 I have knowledge and skills to diagnose, service and repair cooling system.	1.000	.670
ST12 I have knowledge and skills to time starter motor.	1.000	.828
ST13 I have knowledge and skills to time fuel injection pump.	1.000	.725
ST14 I have knowledge and skills to diagnose, service and repair ignition system.	1.000	.721

Extraction Method: Principal Component Analysis.

Source: Field survey, 2018

From the Table 4.15, shows the proportion of in that variables explained by the nine factors. In other words, we obtain an R^2 ranges between 0.670 and 0.871, indicating that about 70% to 90% of the variation in knowledge and skills is explained by the factor model. The results suggest that

the factor analysis does the best job of explaining variation in knowledge and skills, the Motor Vehicle Garages.

The next table, Table 4.16 is the Kaiser-Meyer-Olkin (KMO) which of 844. The KMO test tells us whether or not enough items are predicted by each factor. KMO value of 0.844 is very good. The Bartlett test should be significant (i.e., a significance value, $p < .05$); this means that the variables are correlated highly enough to provide a reasonable basis for factor analysis as in this case it is 0.000<0.05.

Table 4.16 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.844
Bartlett's Test of Sphericity	Approx. Chi-Square	780.590
	Df	36
	Sig.	.000

Source: Field survey, 2018

The KMO of 0.844 in the Table 4.16, indicates very good grounds for further analysis.

Table 4.16, further shows the Total Variance Explained table which shows how the variance is divided among the 9 possible factors. Note that two factors have eigenvalues (a measure of explained variance) greater than 1.0, which is a common criterion for a factor to be useful. When the eigenvalue is less than 1.0 the factor explains less information than a single item would have explained. This table shows the actual factors that were extracted. If you look at the section labeled "Rotation Sums of Squared Loadings," it shows you only those factors that met the cut-

off criterion (extraction method). In this case, there were two factors with eigenvalues greater than 1. SPSS always extracts as many factors initially as there are variables in the dataset, but the rest of these didn't make the grade. The "% of variance" column tells us how much of the total variability (in all of the variables together) can be accounted for by each of these summary scales or factors. Factor 1 account for 57.073% of the variability in all 9 variables and factor 2 accounted for 16.675%.

Table 4.17 Total Variance

Comp	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Var	Cum. %	Total	% of Var	Cum. %	Total	% of Var	Cum. %
1	5.137	57.073	57.073	5.137	57.073	57.073	3.721	41.348	41.348
2	1.501	16.675	73.748	1.501	16.675	73.748	2.916	32.400	73.748
3	.632	7.022	80.770						
4	.444	4.930	85.700						
5	.396	4.398	90.097						
6	.342	3.805	93.902						
7	.272	3.018	96.921						
8	.174	1.931	98.851						
9	.103	1.149	100.000						

Extraction Method: Principal Component Analysis.

Source: Field survey, 2018

Form the Table 4.17, the two factors accounted 73.7% variations in the data. This means that the nine variables can be grouped into just two variables.

Figure 4.1 is the scree plot. The Scree Plot shows the initial Eigenvalues as well. From the scree plot it can again be seen that only two values are above 1.0. The rest of the 9 are below 1.0 and will not be considered.
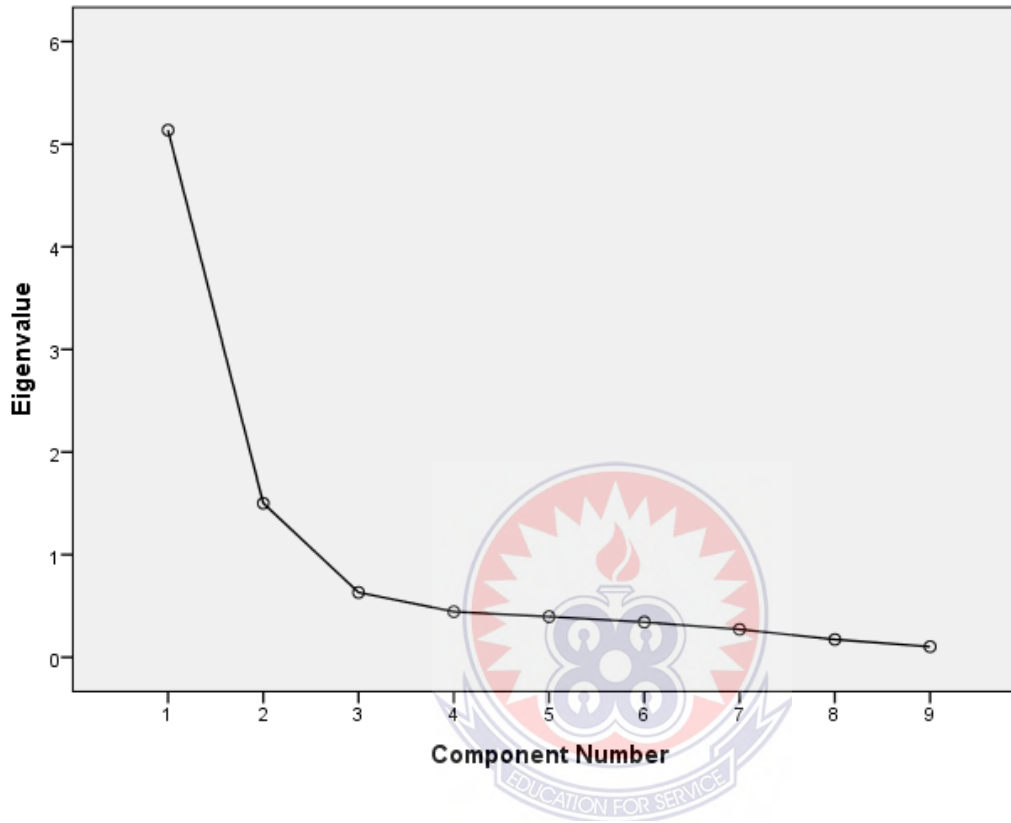
Figure 4.1 Scree Plot.   Source: Field survey, 2018

The next Table 4.18, illustrates the unrotated factor loadings presented. These show the expected pattern, with high positives compare with the negative loadings on the first and second factors.

Table 4.18 Component Matrix[a]

Variable	Component	
	1	2
ST7 I have knowledge and skills to assemble an engine.	0.823	-0.440
ST6 I have knowledge and skills to dismantle an engine.	0.792	
ST10 I have knowledge and skills for valves adjustment.	0.790	
ST8 I have knowledge and skills to time an engine.	0.787	-0.324
ST11 I have knowledge and skills to diagnose, service and repair cooling system.	0.777	
ST9 I have knowledge and skills to disassemble and assemble cylinder head valves.	0.759	-0.365
ST12 I have knowledge and skills to time starter motor.	0.718	0.559
ST14 I have knowledge and skills to diagnose, service and repair ignition system.	0.680	0.509
ST13 I have knowledge and skills to time fuel injection pump.	0.655	0.544

a. 2 components extracted.

Source: Field survey, 2018
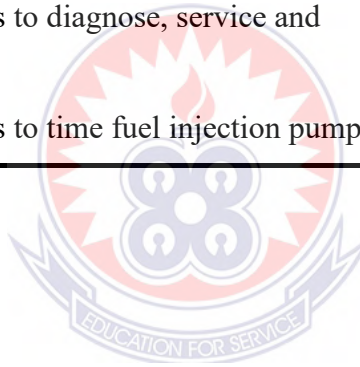
Table 4.19, shows the Rotated Factor Matrix table is key for understanding the results of the analysis. Factors are rotated so that they are easier to interpret. Rotation makes it so that, as much as possible, different items are explained or predicted by different underlying factors, and each factor explains more than one item. This is a condition called simple structure. One thing to look for in the Rotated Matrix of factor loadings is the extent to which simple structure is achieved. The items are sorted so that the items that have the highest loading (not considering whether the correlation is positive or negative) from factor 1 (six items in this analysis) are listed first, and they are sorted from the one with the highest factor weight or loading (i.e., item ST7, with a

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loading of 0.918) to the one with the lowest loading from that first factor (ST11). Actually, every item has some loading from every factor, but we requested for loadings less than |0.30| to be excluded from the output, so there are blanks where low loadings exist. Because these are correlations, possible values range from -1 to +1. On the / format subcommand, we used the option blank (0.30), which tells SPSS not to print any of the correlations that are 0.3 or less. This makes the output easier to read by removing the clutter of low correlations that are probably not meaningful anyway.

Table 4.19a Rotated Component Matrix[a]

Variable	Component	
	1	2
ST7 I have knowledge and skills to assemble an engine.	0.918	
ST9 I have knowledge and skills to disassemble and assemble cylinder head valves.	0.821	
ST8 I have knowledge and skills to time an engine.	0.817	
ST6 I have knowledge and skills to dismantle an engine.	0.800	
ST10 I have knowledge and skills for valves adjustment.	0.758	0.317
ST12 I have knowledge and skills to time starter motor.		0.885
ST13 I have knowledge and skills to time fuel injection pump.		0.834
ST14 I have knowledge and skills to diagnose, service and repair ignition system.		0.822
ST11 I have knowledge and skills to diagnose, service and repair cooling system.	0.448	0.685

Extraction Method: Principal Component Analysis.

Source: Field survey, 2018

4.3.1.2 Transmission system

Relative to garage mechanics knowledge in transmission system, Table 4.19b shows the descriptive statistics. The mean score of each variable is shown ranging from 3.34 to 4.65. The corresponding percentages are given as well.

Table 4.19b Descriptive Statistics

Variable	Mean	Std. Deviation	Analysis N
ST15 I have knowledge and skills to diagnose, service and repair of automatic gearbox.	3.34	1.556	124
ST16 I have knowledge and skills to diagnose and repair manual gearbox.	4.28	1.025	124
ST17 I have knowledge and skills to diagnose, service and repair of clutch.	4.65	.573	124
ST18 I have knowledge and skills to diagnose, service and repair of gearbox.	4.38	.968	124
ST19 I have knowledge and skills to diagnose, service and repair propeller shaft.	4.64	.589	124

Source: Field survey, 2018

Table 4.20, indicates how each question is correlated with each of the other questions. Some of the correlations are good as 0.75 and some are low as 0.020. These low values show virtually no correlation. One of the assumption is that the determinant (located under the correlation matrix) should be more than 0 .0001. Here, it is .113 so this assumption is met.

Table 4.20 Correlation Matrix[a]

Variables		E15	E16	E17	E18	E19
Correlation	ST15 I have knowledge and skills to diagnose, service and repair of automatic gearbox.	1.00	.373	-.056	.314	0.020
	ST16 I have knowledge and skills to diagnose and repair manual gearbox.	0.373	1.00	0.366	0.752	0.360
	ST17 I have knowledge and skills to diagnose, service and repair of clutch.	-0.056	.366	1.00	.523	0.723
	ST18 I have knowledge and skills to diagnose, service and repair of gearbox.	0.314	0.752	.523	1.00	0.514
	ST19 I have knowledge and skills to diagnose, service and repair propeller shaft.	0.020	0.360	0.723	0.514	1.00

a. Determinant = .113

Source: Field survey, 2018

From Table 4.20, the variable does correlates and is statistically significant since the alpha value of 0.05 is less than the determinant, 0.113.

Table 4.21, indicates the Kaiser-Meyer-Olkin (KMO) which 0.686. The KMO test tells us whether or not enough items are predicted by each factor. KMO value of 0.686 is normal. The Bartlett test should be significant (i.e., a significance value, $p < .05$); this means that the variables are correlated highly enough to provide a reasonable basis for factor analysis as in this case it is 0.000<0.05.

Table 4.21 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.686
Bartlett's Test of Sphericity	Approx. Chi-Square	262.650
	Df	10
	Sig.	.000

Source: Field survey, 2018

Table 4.22, demonstrates the initial communalities represent the relation between the variable and all other variables before rotation. None of the communalities are low (< .30), In this case all the communalities are above 0.3 which is quite good.

Table 4.22 Communalities

Variables	Initial	Extraction
ST15 I have knowledge and skills to diagnose, service and repair of automatic gearbox.	1.000	.759
ST16 I have knowledge and skills to diagnose and repair manual gearbox.	1.000	.768
ST17 I have knowledge and skills to diagnose, service and repair of clutch.	1.000	.830
ST18 I have knowledge and skills to diagnose, service and repair of gearbox.	1.000	.814
ST19 I have knowledge and skills to diagnose, service and repair propeller shaft.	1.000	.784

Extraction Method: Principal Component Analysis.

Source: Field survey, 2018

From Table 4.22, indicates the proportion of each variable's variance that can be explained by the factors. In other words, we obtain an R^2 ranges between 0.759 and 0.830, indicating that about 76% to 83% of the variation in knowledge and skills is explained by the factor model. The results suggest that the factor analysis does the best job of explaining variation in knowledge and skills, the Motor Vehicle Garages.

Table 4.23, represents the Total Variance Explained table which shows how the variance shared among the possible factors. Note that two factors have eigenvalues greater than 1.0, a common criterion for a factor to be useful. When the eigenvalue is less than 1.0 the factor explains less information than a single item would have explained. Factor 1 accounts for 53.797% of the variability in all 5 variables and factor 2 accounted for 25.3%. The two factors accounted for cumulative percentage of 79.097 variability.

Table 4.23 Total Variance

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cum %	Total	% of Var	Cum %
1	2.690	53.797	53.797	2.690	53.797	53.797	2.213	44.263	44.263
2	1.265	25.300	79.097	1.265	25.300	79.097	1.742	34.834	79.097
3	.552	11.048	90.145						
4	.270	5.393	95.538						
5	.223	4.462	100.000						

Extraction Method: Principal Component Analysis.
Source: Field survey, 2018

From the scree plot Figure 4.2, it can again be seen that only two values are above 1.0. The rest of the 5 are below 1.0 and will not be considered.

Figure 4.2 Scree plot. Source: Field survey, 2018

The next Table 4.24, represent the unrotated factor loadings presented. These show the expected pattern, with high positives compare with the negative loadings on the first and second factors. ST18 has the highest loading follow by ST16 for factor1. ST15 is the highest loading for factor 2.

Table 4.24 Component Matrix[a]

Variable	Component	
	1	2
ST18 I have knowledge and skills to diagnose, service and repair of gearbox.	.884	
ST16 I have knowledge and skills to diagnose and repair manual gearbox.	.794	.372
ST19 I have knowledge and skills to diagnose, service and repair propeller shaft.	.769	-.439
ST17 I have knowledge and skills to diagnose, service and repair of clutch.	.764	-.497
ST15 I have knowledge and skills to diagnose, service and repair of automatic gearbox.	.323	.809

Extraction Method: Principal Component Analysis.   a. 2 components extracted.

Source: Field survey, 2018

Table 4.25, represents the Rotated Factor Matrix table. It is key for understanding the results of the analysis. Because these are correlations, possible values range from -1 to +1. On the / format subcommand, we used the option blank (0.30), which tells SPSS not to print any of the correlations that are 0.3 or less. This makes the output easier to read by removing the clutter of low correlations that are probably not meaningful anyway.

Table 4.25 Rotated Component Matrix[a]

Variable	Component	
	1	2
ST17 I have knowledge and skills to diagnose, service and repair of clutch.	0.910	
ST19 I have knowledge and skills to diagnose, service and repair propeller shaft.	0.881	
ST15 I have knowledge and skills to diagnose, service and repair of automatic gearbox.		0.847
ST16 I have knowledge and skills to diagnose and repair manual gearbox.	.432	0.762
ST18 I have knowledge and skills to diagnose, service and repair of gearbox.	.616	.659

a. Rotation converged in 3 iterations.

Source: Field survey, 2018

Electrical and Electronic system

Table 4.26, denotes the descriptive statistics for level of knowledge of garage mechanics in Electrical and Electronic system. The mean score of each variable is shown ranging from 2.84 to 3.31. The corresponding percentages are given as well.

Table 4.26 Descriptive Statistics

Variable	Mean	Std. Deviation	Analysis N
ST20 I have knowledge and skills to use scan tool to diagnose and retrieve fault code.	2.84	1.445	124
ST21 I don't have knowledge and skills of exhaust gas analyser.	3.31	1.473	124
ST22 I have knowledge and skills to diagnose airbag collision system (SRS).	2.94	1.330	124
ST23 I don't have knowledge and skills of engine management system.	2.84	1.352	124
ST24 I have knowledge and skills to diagnose and repair electronic control unit(ECU).	2.68	1.440	124
ST25 I don't have knowledge and skills on electronic sensors.	2.83	1.378	124
ST26 I have knowledge and skills to diagnose electronic central door lock system.	2.98	1.281	124

Source: Field survey, 2018

Table 4.27, indicates how each question is correlated with each of the other questions. Some of the correlations are good as 0.73 and some are low as 0.0020 (indication of no correlation). These low values show virtually no correlation. One of the assumption is that the determinant

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(located under the correlation matrix) should be more than .0001. Here, it is .059 so this assumption is met.

Table 4.27 Correlation Matrix[a]

	Variable	E20	E21	E22	E23	E24	E25	E26
Correlation	ST20 I have knowledge and skills to use scan tool to diagnose and retrieve fault code.	1.000	-.182	.697	-.059	.737	-.006	.631
	ST21 I don't have knowledge and skills of exhaust gas analyser.	-.182	1.000	-.023	.450	-.113	.351	-.023
	ST22 I have knowledge and skills to diagnose airbag collision system (SRS).	.697	-.023	1.000	.094	.677	.016	.634
	ST23 I don't have knowledge and skills of engine management system.	-.059	.450	.094	1.000	-.002	.221	.116
	ST24 I have knowledge and skills to diagnose and repair electronic control unit(ECU).	.737	-.113	.677	-.002	1.000	.026	.684
	ST25 I don't have knowledge and skills on electronic sensors.	-.006	.351	.016	.221	.026	1.000	.155
	ST26 I have knowledge and skills to diagnose electronic central door lock system.	.631	-.023	.634	.116	.684	.155	1.000

a. Determinant = .059

Source: Field survey, 2018

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Table 4.28, shows the Kaiser-Meyer-Olkin (KMO) which.785. KMO value of 0.785 is good. The Bartlett test should be significant (i.e., a significance value, $p < .05$); this means that the variables are correlated highly enough to provide a reasonable basis for factor analysis as in this case it is 0.000<0.05.

Table 4.28 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.785
	Approx. Chi-Square	339.737
Bartlett's Test of Sphericity	Df	21
	Sig.	.000

Source: Field survey, 2018

Table 4.29 is the initial communalities represent the relation between the variable and all other variables before rotation. None of the communalities are low (< .30), In this case all the communalities are above 0.3 which is quite good.

Table 4.29 Communalities

Variable	Initial	Extraction
ST20 I have knowledge and skills to use scan tool to diagnose and retrieve fault code.	1.000	.795
ST21 I don't have knowledge and skills of exhaust gas analyser.	1.000	.691
ST22 I have knowledge and skills to diagnose airbag collision system (SRS).	1.000	.743
ST23 I don't have knowledge and skills of engine management system.	1.000	.571
ST24 I have knowledge and skills to diagnose and repair electronic control unit(ECU).	1.000	.796
ST25 I don't have knowledge and skills on electronic sensors.	1.000	.441
ST26 I have knowledge and skills to diagnose electronic central door lock system.	1.000	.734

Extraction Method: Principal Component Analysis.
Source: Field survey, 2018

Table 4.30, indicates the Total Variance Explained table which shows how the variance shared among the possible factors. Note that two factors have eigenvalues greater than 1.0, a common criterion for a factor to be useful. Factor 1 accounts for 43.553% of the variability in all 7 variables and factor 2 accounted for 24.623%. The two factors accounted for cumulative percentage of 68.176 variability.

Table 4.30 Total Variance

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Var	Cum %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.049	43.553	43.553	3.049	43.553	43.553	3.049	43.552	43.552
2	1.724	24.623	68.176	1.724	24.623	68.176	1.724	24.624	68.176
3	.800	11.432	79.608						
4	.516	7.371	86.979						
5	.360	5.137	92.116						
6	.306	4.369	96.484						
7	.246	3.516	100.000						

Extraction Method: Principal Component Analysis.

Source: Field survey, 2018

From the scree plot as illustrated Figure 4.3, it can again be seen that only two values are above 1.0. The rest of the 5 are below 1.0 and will not be considered.
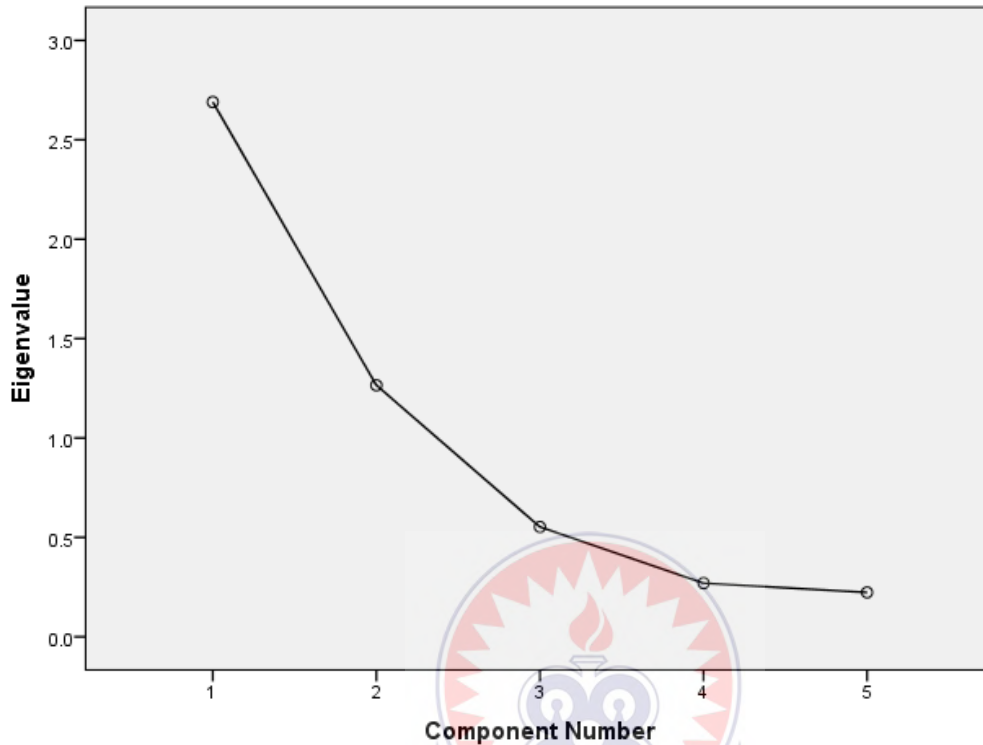
92
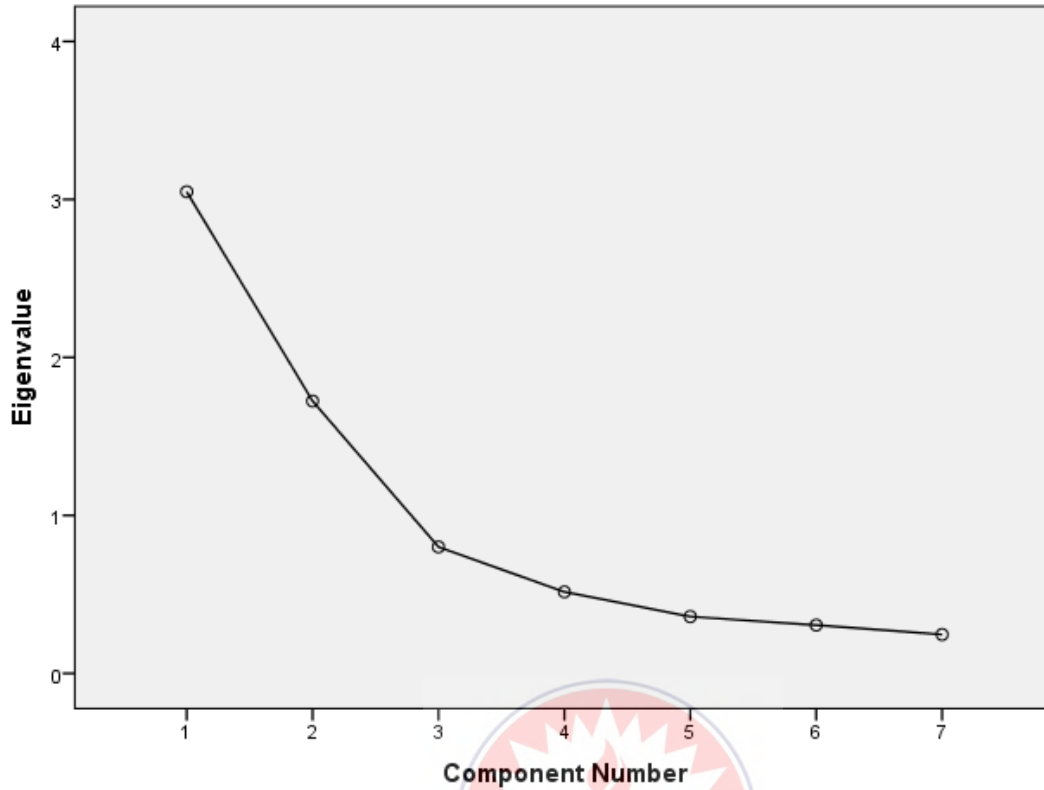
Figure 4.3 Scree plot. Source: Field survey, 2018

The next Table 4.24, shows the unrotated factor loadings presented. These show the expected pattern, with high positives compare with the negative loadings on the first and second factors. ST18 has the highest loading follow by ST16 for factor1. ST15 is the highest loading for factor 2.

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Table 4.31 Component Matrix[a]

Variable	Component	
	1	2
ST24 I have knowledge and skills to diagnose and repair electronic control unit(ECU).	0.891	
ST20 I have knowledge and skills to use scan tool to diagnose and retrieve fault code.	0.883	
ST22 I have knowledge and skills to diagnose airbag collision system (SRS).	0.860	
ST26 I have knowledge and skills to diagnose electronic central door lock system.	0.844	
ST21 I don't have knowledge and skills of exhaust gas analyser.		0.821
ST23 I don't have knowledge and skills of engine management system.		0.755
ST25 I don't have knowledge and skills on electronic sensors.		0.661

Extraction Method: Principal Component Analysis.

a. 2 components extracted.

Source: Field survey, 2018

Table 4.32, is the Rotated Factor Matrix table. It is key for understanding the results of the analysis. Because these are correlations, possible values range from -1 to +1. On the / format subcommand, we used the option blank (0.30), which tells SPSS not to print any of the correlations that are 0.3 or less. This makes the output easier to read by removing the clutter of low correlations that are probably not meaningful anyway.

Table 4.32 Rotated Component Matrix[a]

Variable	Component	
	1	2
ST24 I have knowledge and skills to diagnose and repair electronic control unit(ECU).	0.891	
ST20 I have knowledge and skills to use scan tool to diagnose and retrieve fault code.	0.882	
ST22 I have knowledge and skills to diagnose airbag collision system (SRS).	.860	
ST26 I have knowledge and skills to diagnose electronic central door lock system.	0.845	
ST21 I don't have knowledge and skills of exhaust gas analyser.		0.822
ST23 I don't have knowledge and skills of engine management system.		0.754
ST25 I don't have knowledge and skills on electronic sensors.		0.661

a. Rotation converged in 3 iterations.

Source: Field survey, 2018

4.3.1.3 Brakes

Relative to garage mechanics knowledge in brakes, Table 4.33 presents the descriptive statistics.

The mean score of each variable is shown ranging from 3.34 to 4.65. The corresponding

percentages are given as well.

Table 4.33 Descriptive Statistics

Variable	Mean	Std. Deviation	Analysis N
ST27 I have knowledge and skills to diagnose ,service and repair power assist systems.	4.19	0.862	124
ST28 I have knowledge and skills to diagnose ,service and repair drum brake.	4.70	0.459	124
ST29 I have knowledge and skills to diagnose ,service and repair disc brake.	4.65	0.511	124
ST30 I have knowledge and skills to diagnose ,service and repair TCS (traction control systems).	3.31	1.303	124
ST31 I have knowledge and skills to diagnose service and repair ABS (antilock brake systems).	3.44	1.296	124

Source: Field survey, 2018

Table 4.34, indicates how each question is correlated with each of the other questions. Some of the correlations are good as 0.768 and some are low as 0.135. One of the assumption is that the determinant (located under the correlation matrix) should be more than 0.0001. Here, it is 0.058 so this assumption is met.

Table 4.34 Correlation Matrix[a]

	Variable	ST27.	ST28	ST29	ST30	ST31
Correlation	ST27 I have knowledge and skills to diagnose ,service and repair power assist systems.	1.000	0.250	0.135	0.590	0.499
	ST28 I have knowledge and skills to diagnose ,service and repair drum brake.	0.250	1.000	0.768	0.145	0.083
	ST29 I have knowledge and skills to diagnose ,service and repair disc brake.	0.135	0.768	1.000	0.190	0.144
	ST30 I have knowledge and skills to diagnose ,service and repair TCS (traction control systems).	0.590	0.145	0.190	1.000	0.867
	ST31 I have knowledge and skills to diagnose service and repair ABS (antilock brake systems).	0.499	0.083	0.144	0.867	1.000

a. Determinant = .058

Source: Field survey, 2018

Table 4.35, indicates the Kaiser-Meyer-Olkin (KMO) which 0.581. The KMO test tells us whether or not enough items are predicted by each factor. KMO value of 0.581 is poor. The Bartlett test however is significant (i.e., a significance value, $p < 0.05$); this means that the variables are correlated highly enough to provide a reasonable basis for factor analysis as in this case it is 0.000<0.05. We can proceed with factor analysis.

Table 4.36 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.581
Bartlett's Test of Sphericity	Approx. Chi-Square	342.564
	df	10
	Sig.	.000

Source: Field survey, 2018

Table 4.37 is the initial communalities represent the relation between the variable and all other variables before rotation. All the communalities are above .30.

Table 4.37 Communalities

Variable	Initial	Extraction
ST27 I have knowledge and skills to diagnose ,service and repair power assist systems.	1.000	.591
ST28 I have knowledge and skills to diagnose ,service and repair drum brake.	1.000	.892
ST29 I have knowledge and skills to diagnose ,service and repair disc brake.	1.000	.872
ST30 I have knowledge and skills to diagnose ,service and repair TCS (traction control systems).	1.000	.896
ST31 I have knowledge and skills to diagnose service and repair ABS (antilock brake systems).	1.000	.845

Extraction Method: Principal Component Analysis.
Source: Field survey, 2018

Table 4.38, indicates the Total Variance Explained table which shows how the variance shared among the possible factors. Note that two factors have eigenvalues greater than 1.0, a common criterion for a factor to be useful. When the eigenvalue is less than 1.0 the factor explains less information than a single item would have explained. Factor 1 accounts for 50.27% of the variability in all 5 variables and factor 2 accounted for 31.634%. The two factors accounted for cumulative percentage of 81.904 variability.

Total 4.38 Variance

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.514	50.270	50.270	2.514	50.270	50.270	2.315	46.308	46.308
2	1.582	31.634	81.904	1.582	31.634	81.904	1.780	35.596	81.904
3	.576	11.512	93.416						
4	.205	4.101	97.516						
5	.124	2.484	100.000						

Extraction Method: Principal Component Analysis.
Source: Field survey, 2018

From the scree plot it can again be seen that only two values are above 1.0 as indicated in Figure 4.4. The rest of the 5 are below 1.0 and will not be considered.

98
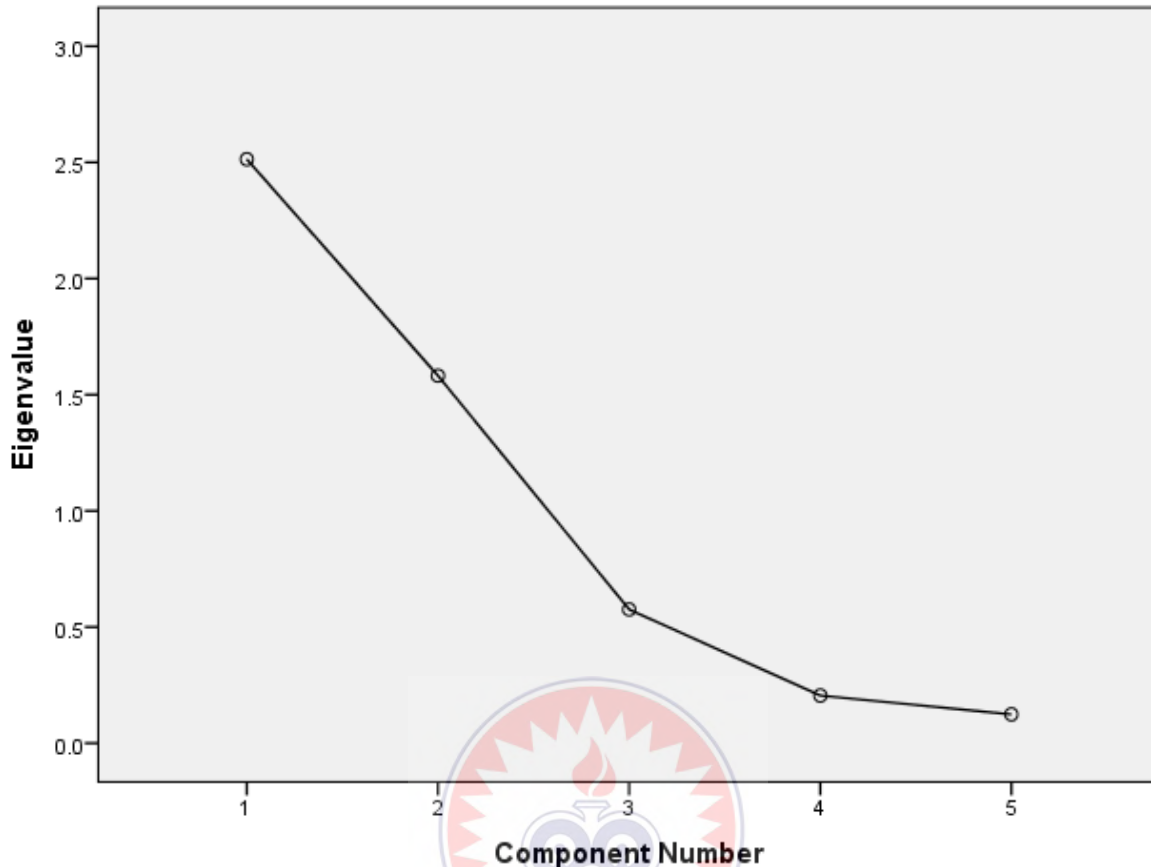
Figure 4.4 Scree plot.   Source: Field survey, 2018

The next Table 4.39, presentes the unrotated factor loadings. These show the expected pattern, with high all positives loadings on the first factor compare to mixture of positives and negatives loadings in the second factors. ST30 has the highest loading follow by ST31 for factor1. ST29 has the highest loading in factor 2 followed by ST28.

Table 4.39 Component Matrix[a]

Variable	Component	
	1	2
ST30 I have knowledge and skills to diagnose ,service and repair TCS (traction control systems).	0.873	-0.366
ST31 I have knowledge and skills to diagnose service and repair ABS (antilock brake systems).	0.822	-0.411
ST27 I have knowledge and skills to diagnose ,service and repair power assist systems.	0.742	
ST28 I have knowledge and skills to diagnose ,service and repair drum brake.	0.512	0.794
ST29 I have knowledge and skills to diagnose ,service and repair disc brake.	0.514	0.780

Extraction Method: Principal Component Analysis.

a. 2 components extracted.

Source: Field survey, 2018

Table 4.40 is the Rotated Factor Matrix table. It is key for understanding the results of the analysis. Because these are correlations, possible values range from -1 to +1. On the / format subcommand, we used the option blank (0.30), which tells SPSS not to print any of the correlations that are .3 or less. The values are quite high in this case all above 0.70.

Table 4.40 Rotated Component Matrix[a]

Variable	Component	
	1	2
ST30 I have knowledge and skills to diagnose ,service and repair TCS (traction control systems).	0.943	
ST31 I have knowledge and skills to diagnose service and repair ABS (antilock brake systems).	0.919	
ST27 I have knowledge and skills to diagnose ,service and repair power assist systems.	0.751	
ST28 I have knowledge and skills to diagnose ,service and repair drum brake.		0.940
ST29 I have knowledge and skills to diagnose ,service and repair disc brake.		0.929

a. Rotation converged in 3 iterations.

Source: Field survey, 2018

Suspension and Steering

Relative to garage mechanics knowledge in transmission system, Table 4.41, shows the descriptive statistics. The mean score of each variable is shown ranging from 4.24 to 4.65. The corresponding percentages are given as well.

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Table 4.41 Descriptive Statistics

Variable	Mean	Std. Deviation	Analysis N
ST32 I have knowledge and skills to diagnose, service, and repair hydraulic power steering assisting unit.	4.30	0.698	124
ST33 I have knowledge and skills to diagnose service and repair steering gearbox.	4.27	0.859	124
ST34 I have knowledge and skills to diagnose, service, and repair coil spring.	4.42	0.651	124
ST35 I have knowledge and skills to diagnose, service, and repair shock absorber.	4.24	0.966	124
ST36 I have knowledge and skills to service and repair front and rear hubs.	4.65	0.625	124

Source: Field survey, 2018

Table 4.42, indicates how each question is correlated with each of the other questions. Some of the correlations are good as 0.67 and some are low as 0.179. One of the assumption is that the determinant (located under the correlation matrix) should be more than .0001. Here, it is .206 so this assumption is met.

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Table 4.42 Correlation Matrix[a]

	Variable	ST32	ST33	ST34	ST35	ST36.
Corr.	ST32 I have knowledge and skills to diagnose, service, and repair hydraulic power steering assisting unit.	1.00	0.635	0.402	0.519	0.313
	ST33 I have knowledge and skills to diagnose service and repair steering gearbox.	0.635	1.00	.374	.674	0.179
	ST34 I have knowledge and skills to diagnose, service, and repair coil spring.	0.402	0.374	1.00	.419	0.340
	ST35 I have knowledge and skills to diagnose, service, and repair shock absorber.	0.519	0.674	0.419	1.00	0.248
	ST36 I have knowledge and skills to service and repair front and rear hubs.	0.313	0.179	0.340	.248	1.000

a. Determinant = .206

Source: Field survey, 2018

Table 4.43, is the Kaiser-Meyer-Olkin (KMO) which is 686. The KMO test tells us whether or not enough items are predicted by each factor. KMO value of 0.686 is normal. The Bartlett test should be significant (i.e., a significance value, $p < 0.05$); this means that the variables are correlated highly enough to provide a reasonable basis for factor analysis as in this case it is 0.000<0.05.

Table 4.43 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.750
Bartlett's Test of Sphericity	Approx. Chi-Square	190.462
	Df	10
	Sig.	0.000

Source: Field survey, 2018

Table 4.44 is the initial communalities represent the relation between the variable and all other variables before rotation. Only ST36 has the communality less than 0.30, In this case the rest of the communalities are above 0.3 which is quite good.

Table 4.44 Communalities

Variable	Initial	Extraction
ST32 I have knowledge and skills to diagnose, service, and repair hydraulic power steering assisting unit.	1.000	0.655
ST33 I have knowledge and skills to diagnose service and repair steering gearbox.	1.000	0.684
ST34 I have knowledge and skills to diagnose, service, and repair coil spring.	1.000	0.454
ST35 I have knowledge and skills to diagnose, service, and repair shock absorber.	1.000	0.663
ST36 I have knowledge and skills to service and repair front and rear hubs.	1.000	0.241

Extraction Method: Principal Component Analysis.

Source: Field survey, 2018

Table 4.45, shows the Total Variance Explained table which shows how the variance of the among the only factor. There is only one factor with eigenvalue greater than 1.0, a common criterion for a factor to be useful. The factor accounts for 53.925% of the variability in all 5 variables.

Table 4.45 Total Variance

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.696	53.925	53.925	2.696	53.925	53.925
2	.932	18.642	72.568			
3	.620	12.391	84.958			
4	.472	9.439	94.397			
5	.280	5.603	100.000			

Extraction Method: Principal Component Analysis.

Source: Field survey, 2018

Figure 4.5, the scree plot. From the scree plot it can be seen that only one values is above 1.0. The rest of the 5 are below 1.0 and will not be considered.
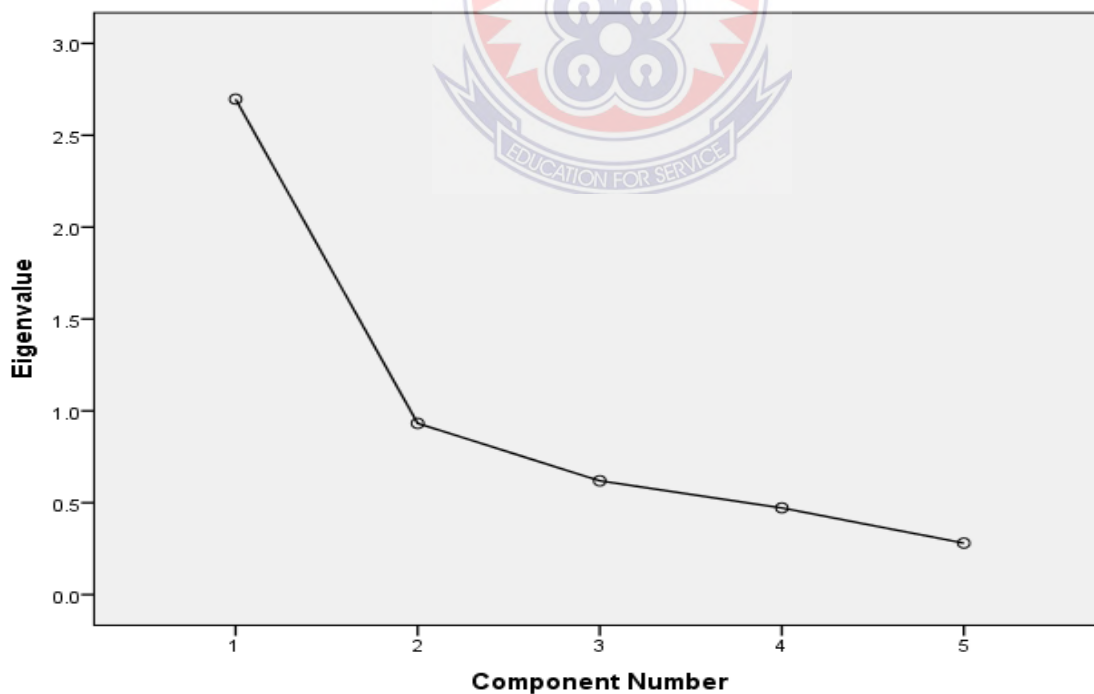
Figure 4.5 Scree plot.   Source: Field survey, 2018

The next Table 4.46, represent the unrotated factor loadings presented. These show the expected pattern, with high positives compare with the negative loadings on the first and second factors. ST33 has the highest loading follow by ST35 for factor1.

Table 4.46 Component Matrix[a]

Variable	Component
	1
ST33 I have knowledge and skills to diagnose service and repair steering gearbox.	0.827
ST35 I have knowledge and skills to diagnose, service, and repair shock absorber.	0.814
ST32 I have knowledge and skills to diagnose, service, and repair hydraulic power steering assisting unit.	0.809
ST34 I have knowledge and skills to diagnose, service, and repair coil spring.	0.674
ST36 I have knowledge and skills to service and repair front and rear hubs.	0.491

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Source: Field survey, 2018

4.4 Customer relations with garage managers

4.4.1 Trust

In respect of customer relations with garage managers, we assess trust customers are having in garage mechanics. Table 4.47, indicates the descriptive statistics. The mean score of each variable is shown ranging from 3.34 to 4.65. The corresponding percentages are given as well.

Table 4.47 Descriptive Statistics

Variable	Mean	Std. Deviation	Analysis N
ST6Informal garage mechanics services make a sense of stability into my life.	3.17	1.269	65
ST7Informal garage mechanics make me feel like at home.	3.12	1.256	65
ST8Informal garage mechanics service makes me feel safe and secure.	3.15	1.093	65
ST9Informal garage mechanics provide security for my vehicle.	3.02	1.340	65
ST10I always service my vehicle with informal garages.	3.58	1.236	65
ST11Informal garage mechanics can be trusted .	3.06	1.088	65
ST12Informal garage mechanics have higher integrity.	3.03	1.131	65
ST13I rely on informal garage mechanic for servicing my car.	3.60	1.115	65
ST14I believe my mechanics are honest in the profession.	3.51	1.062	65
ST15Informal mechanic makes follow up calls to know the condition of my car.	2.80	1.349	65
ST16Informal garage mechanics meets my expectations.	3.43	1.224	65

Source: Field survey, 2018

Table 4.48, indicates how each question is correlated with each of the other questions. Some of the correlations are good as 0.799 and some are low as 0.412. These values show very good correlations. The determinant assumption should be more than .0001 is also met. Here, it is .003 so this assumption is met.

Table 4.48 Correlation Matrix

	Variable	T6	T7	T8	T9	T10	T11	T12	T13	T14	T10	T16
	ST6	1.000	.778	.799	.734	.661	.712	.688	.622	.458	.602	.517
	ST7	.778	1.000	.763	.713	.671	.716	.670	.604	.470	.535	.444
	ST8	.799	.763	1.000	.783	.595	.741	.736	.581	.499	.637	.448
	ST9	.734	.713	.783	1.000	.610	.708	.773	.495	.503	.656	.412
	ST10	.661	.671	.595	.610	1.000	.655	.640	.746	.584	.446	.625
Corre.	ST11	.712	.716	.741	.708	.655	1.000	.756	.489	.459	.603	.501
	ST12	.688	.670	.736	.773	.640	.756	1.000	.610	.531	.614	.544
	ST13	.622	.604	.581	.495	.746	.489	.610	1.000	.539	.357	.548
	ST14	.458	.470	.499	.503	.584	.459	.531	.539	1.000	.407	.578
	ST15	.602	.535	.637	.656	.446	.603	.614	.357	.407	1.000	.556
	ST16	.517	.444	.448	.412	.625	.501	.544	.548	.578	.556	1.000
	ST6		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	ST7	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000
	ST8	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000
	ST9	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000
Sig.	ST10	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000
(1-	ST11	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000
tailed)	ST12	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000
	ST13	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000
	ST14	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000
	ST15	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000
	ST16	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	

a. Determinant = .003

Source: Field survey, 2018

Table 4.49, shows the Kaiser-Meyer-Olkin (KMO) which 0.914. The KMO test tells us whether

or not enough items are predicted by each factor. KMO value of 0.914 is wonderful. The Bartlett

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test is significant (p < .05); this means that the variables are correlated highly enough to provide a reasonable basis for factor analysis as in this case it is 0.000<0.05.

Table 4.49 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.914
Bartlett's Test of Sphericity	Approx. Chi-Square	891.596
	df	55
	Sig.	0.000

Source: Field survey, 2018

Table 4.50, is the initial communalities represent the relation between the variable and all other variables before rotation. None of the communalities are low (< 0.30), In this case all the communalities are above 0.3 which is quite good.

Table 4.50 Communalities

Variable	Initial	Extraction
ST6Informal garage mechanics services make a sense of stability into my life.	1.000	.779
ST7Informal garage mechanics make me feel like at home.	1.000	.740
ST8Informal garage mechanics service makes me feel safe and secure.	1.000	.827
ST9Informal garage mechanics provide security for my vehicle.	1.000	.807
ST10I always service my vehicle with informal garages.	1.000	.775
ST11Informal garage mechanics can be trusted .	1.000	.752
ST12Informal garage mechanics have higher integrity.	1.000	.756
ST13I rely on informal garage mechanic for servicing my car.	1.000	.712
ST14I believe my mechanics are honest in the profession.	1.000	.656
ST15Informal mechanic makes follow up calls to know the condition of my car.	1.000	.582
ST16Informal garage mechanics meets my expectations.	1.000	.688

Extraction Method: Principal Component Analysis.
Source: Field survey, 2018

Table 4.51 is the Total Variance Explained table which shows how the variance shared among the possible factors. Factor 1 accounts for 64.31% of the variability in all 11 variables and factor

2 accounted for 9.096%. The two factors accounted for cumulative percentage of 73.406

variability.

Table 4.51 Total Variance

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Var.	Cum. %	Total	% of Variance	Cum.%
1	7.074	64.310	64.310	7.074	64.310	64.310	4.865	44.227	44.227
2	1.001	9.096	73.406	1.001	9.096	73.406	3.210	29.179	73.406
3	.716	6.507	79.913						
4	.491	4.464	84.377						
5	.375	3.407	87.784						
6	.341	3.104	90.888						
7	.267	2.429	93.317						
8	.226	2.059	95.376						
9	.213	1.933	97.309						
10	.167	1.522	98.831						
11	.129	1.169	100.000						

Extraction Method: Principal Component Analysis.
Source: Field survey, 2018

Figure 4.6, illustrates the scree plot. From the scree plot it can again be seen that only two values

are above 1.0. The rest of the 9 are below 1.0 and will not be considered.
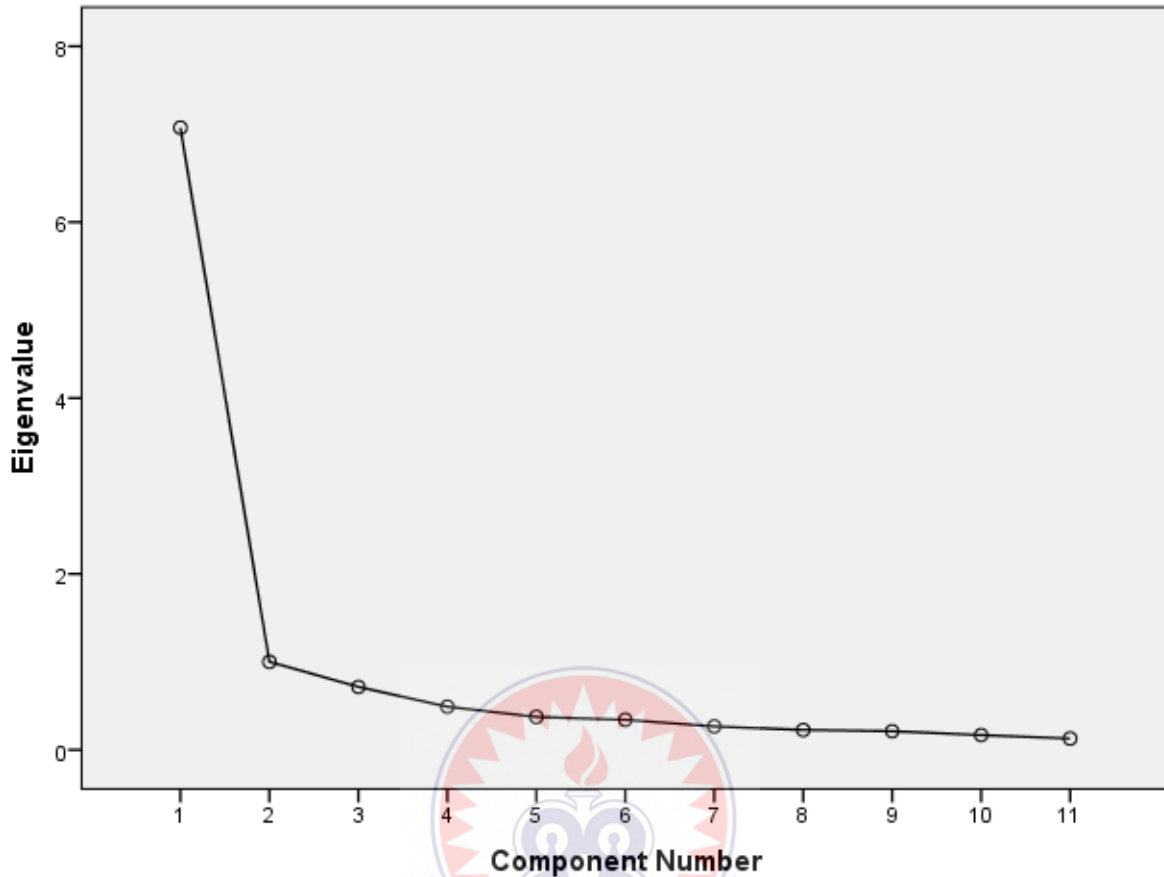
Figure 4.6 Scree plot.   Source: Field survey, 2018

The next Table 4.52, demonstrates the unrotated factor loadings presented. These show the

expected pattern, with high positives compare with the negative loadings on the first and second

factors. ST18 has the highest loading follow by ST16 for factor1. ST15 is the highest loading for

factor 2.

Table 4.52 Component Matrix[a]

Variable	Component	
	1	2
ST8Informal garage mechanics service makes me feel safe and secure.	0.870	
ST6Informal garage mechanics services make a sense of stability into my life.	0.868	
ST12Informal garage mechanics have higher integrity.	0.864	
ST9Informal garage mechanics provide security for my vehicle.	0.848	
ST7Informal garage mechanics make me feel like at home.	0.845	
ST11Informal garage mechanics can be trusted .	0.842	
ST10I always service my vehicle with informal garages.	0.820	0.321
ST13I rely on informal garage mechanic for servicing my car.	0.745	0.397
ST15Informal mechanic makes follow up calls to know the condition of my car.	0.726	
ST16Informal garage mechanics meets my expectations.	0.686	0.466
ST14I believe my mechanics are honest in the profession.	0.671	0.454

Extraction Method: Principal Component Analysis.

a. 2 components extracted.

Source: Field survey, 2018

Table 4.53, shows the Rotated Factor Matrix table. It is key for understanding the results of the

analysis. Because these are correlations, possible values range from -1 to +1. On the /

format subcommand, we used the option blank (0.30), which tells SPSS not to print any of the

correlations that are 0.3 or less. This makes the output easier to read by removing the clutter of

low correlations that are probably not meaningful anyway.

Table 4.53 Rotated Component Matrix[a]

Variable	Component	
	1	2
ST9Informal garage mechanics provide security for my vehicle.	0.856	
ST8Informal garage mechanics service makes me feel safe and secure.	0.853	0.315
ST11Informal garage mechanics can be trusted.	0.798	0.341
ST6Informal garage mechanics services make a sense of stability into my life.	0.789	0.396
ST7Informal garage mechanics make me feel like at home.	0.771	0.382
ST12Informal garage mechanics have higher integrity.	0.747	0.445
ST15Informal mechanic makes follow up calls to know the condition of my car.	0.720	
ST16Informal garage mechanics meets my expectations.		.786
ST14I believe my mechanics are honest in the profession.		.767
ST13I rely on informal garage mechanic for servicing my car.	.355	.766
ST10I always service my vehicle with informal garages.	.461	.750

a. Rotation converged in 3 iterations.
Source: Field survey, 2018

4.5 Practice of quality service of informal motor vehicle garages

4.5.1 Quality Service

Table 4.54, presents the descriptive statistics of quality service of informal motor vehicle garages. The mean score of each variable is shown ranging from 3.18 to 3.58. The corresponding percentages are given as well.

Table 4.54 Descriptive Statistics

Variable	Mean	Std. Deviation	Analysis N
ST17Informal garage mechanics have been consistent in quality of their service.	3.46	1.145	101
ST18Informal garage mechanics provide an acceptable standard quality service.	3.34	1.259	101
ST19Informal garage mechanics provide good service.	3.58	1.051	101
ST20Informal garage mechanics provide services efficiently.	3.51	1.092	101
ST21Informal garage mechanics provide prompt service.	3.32	1.191	101
ST22Informal garage mechanic use quality materials to service my vehicle.	3.18	1.268	101
ST23 Informal garage mechanic have ability to convey trust and confidence to service my vehicle.	3.45	1.229	101
ST24Informal garage mechanics provides caring individualized attention to customers.	3.51	1.293	101
ST25Informal garage mechanics provide accurate service .	3.39	1.241	101
ST26Informal garage mechanics provide dependable services.	3.44	1.212	101
ST27Informal garage mechanics consulting service satisfies me.	3.47	.986	101
ST28Informal garage mechanics provides services effectively.	3.56	1.117	101
ST29Informal garage mechanics service delivering satisfied my expectation.	3.44	1.099	101
ST30Informal garage mechanics are polite and friendly.	3.48	1.221	101
ST31Informal garage mechanic communicate politely to customers.	3.57	1.260	101

Source: Field survey, 2018

Table 4.55, indicates how each question is correlated with each of the other questions. Some of the correlations are good as 0.75 and some are low as 0.020. These low values show virtually no correlation. One of the assumptions is that the determinant (located under the correlation matrix) should be more than .0001. Here, it is .113 so this assumption is met.

Table 4.55 Correlation Matrix

		ST17	ST18	ST19	ST20	ST21	ST22	ST23	ST24	ST25	ST26	ST27	ST28	ST29	ST30	ST31
Corr.	ST18	.676	1.000	.583	.629	.502	.720	.652	.703	.799	.630	.598	.709	.615	.610	.646
	ST19	.641	.583	1.000	.824	.458	.671	.439	.608	.607	.465	.584	.670	.608	.444	.469
	ST20	.667	.629	.824	1.000	.435	.677	.483	.575	.656	.449	.574	.678	.603	.392	.423
	ST21	.429	.502	.458	.435	1.000	.578	.593	.386	.580	.444	.452	.383	.543	.583	.551
	ST22	.619	.720	.671	.677	.578	1.000	.719	.663	.693	.502	.485	.641	.604	.623	.636
	ST23	.487	.652	.439	.483	.593	.719	1.000	.729	.654	.594	.587	.616	.647	.664	.679
	ST24	.489	.703	.608	.575	.386	.663	.729	1.000	.754	.647	.618	.814	.593	.654	.737
	ST25	.579	.799	.607	.656	.580	.693	.654	.754	1.000	.592	.588	.772	.645	.663	.688
	ST26	.447	.630	.465	.449	.444	.502	.594	.647	.592	1.000	.574	.592	.539	.568	.627
	ST27	.537	.598	.584	.574	.452	.485	.587	.618	.588	.574	1.000	.685	.577	.504	.540
	ST28	.610	.709	.670	.678	.383	.641	.616	.814	.772	.592	.685	1.000	.685	.615	.677
	ST29	.466	.610	.444	.392	.583	.623	.664	.654	.663	.568	.504	.615	1.000	.731	.893
	ST30	.675	.615	.608	.603	.543	.604	.647	.593	.645	.539	.577	.685	1.000	.731	.662
	ST31	.489	.646	.469	.423	.551	.636	.679	.737	.688	.627	.540	.677	.662	.893	1.000
	ST32	1.000	.676	.641	.667	.429	.619	.487	.489	.579	.447	.537	.610	.675	.466	.489
Sig. 1-tailed	ST18	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	ST19	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	ST20	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	ST21	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	ST22	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000
	ST23	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000
	ST24	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000
	ST25	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000

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ST26	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000
ST27	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000
ST28	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000
ST29	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000
ST30	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000
ST31	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000		
ST32		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

a. Determinant = .011

Source: Field survey, 2018

Table 4.56 is the Kaiser-Meyer-Olkin (KMO) which 0.914. The KMO test tells us whether or not enough items are predicted by each factor. KMO value of 0.914 is normal. The Bartlett test is significant (p=0.000 <0 .05); this means that the variables are correlated highly enough to provide a reasonable basis for factor analysis as in this case it is 0.000<0.05.

Table 4.56 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.914
Bartlett's Test of Sphericity	Approx. Chi-Square	1397.709
	df	105
	Sig.	.000

Source: Field survey, 2018

The initial communalities represent the relation between the variable and all other variables before rotation are all above 0.3 which is quite good.

Table 4.57, detailed the Total Variance Explained table which shows how the variance shared among the possible factors. Note that two factors have eigenvalues greater than 1.0, a common

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criterion for a factor to be useful. When the eigenvalue is less than 1.0 the factor explains less information than a single item would have explained. Factor 1 accounts for 63.028% of the variability in all 15 variables and factor 2 accounted for 8.022%. The two factors accounted for cumulative percentage of 71.050 variability.

Table 4.57 Total Variance

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.454	63.028	63.028	9.454	63.028	63.028	5.772	38.478	38.478
2	1.203	8.022	71.050	1.203	8.022	71.050	4.886	32.572	71.050
3	0.803	5.356	76.406						
4	0.571	3.808	80.214						
5	0.566	3.771	83.985						
6	0.472	3.148	87.133						
7	0.415	2.769	89.902						
8	0.381	2.539	92.441						
9	0.291	1.939	94.379						
10	0.209	1.392	95.771						
11	0.166	1.110	96.881						
12	0.163	1.086	97.966						
13	0.130	0.869	98.836						
14	0.095	0.634	99.470						
15	0.079	0.530	100.000						

Extraction Method: Principal Component Analysis.
Source: Field survey, 2018

Figure 4.7, present the scree plot. From the scree plot it can again be seen that only two values are above 1.0. The rest of the 5 are below 1.0 and will not be considered.
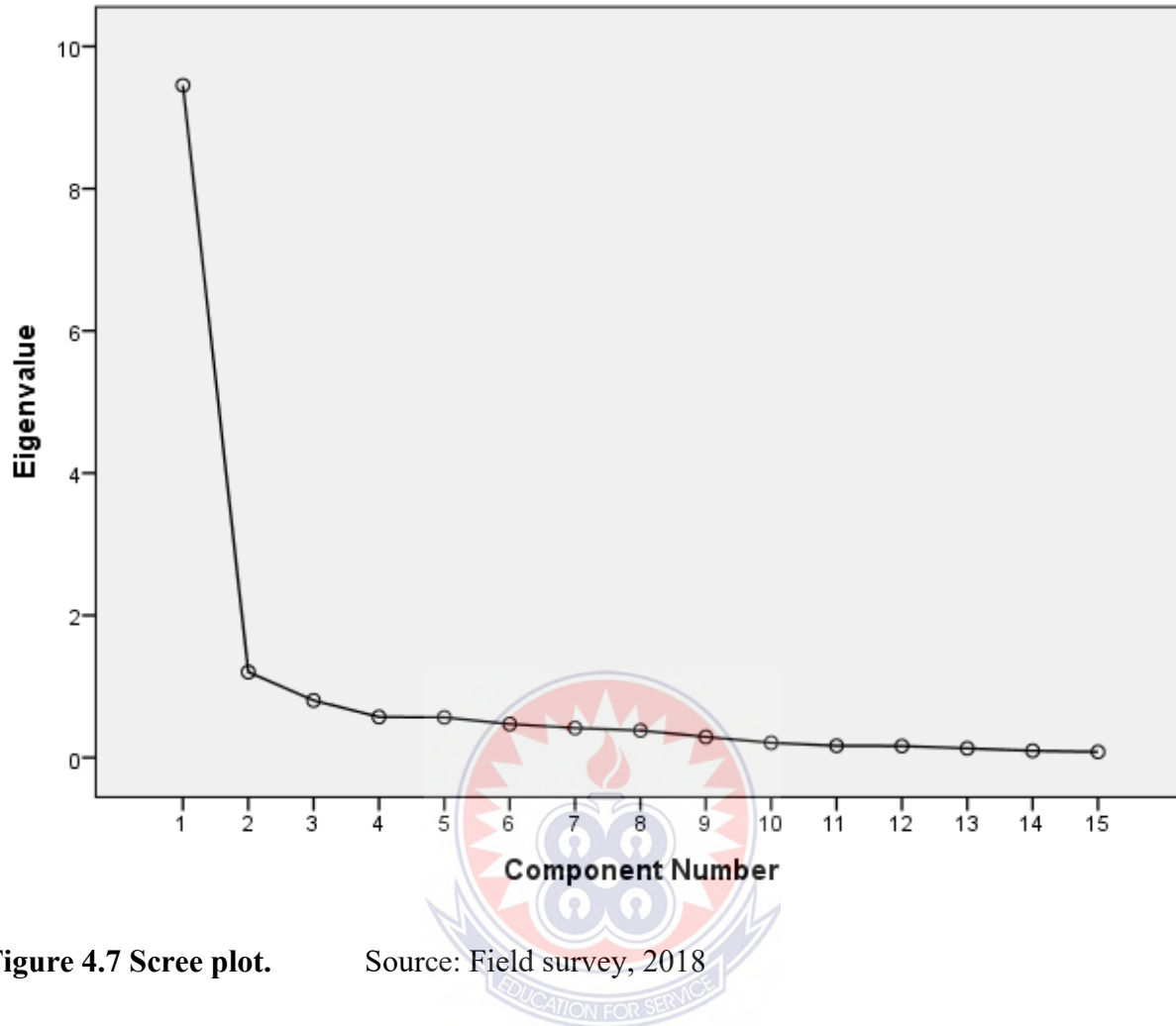
Figure 4.7 Scree plot.   Source: Field survey, 2018

The next Table 4.58, shows the unrotated factor loadings presented. These show the expected pattern, with high positives compare with the negative loadings on the first and second factors. ST25 has the highest loading of 0.868, follow by ST28 of loading 0.859 down to the ST21 of loading 0.657 for factor1. Loadings of factor 1 are relatively low positive and negatives, from ST20 of 0.530 as the highest loading to ST17 of 0.354 for factor 2.

Table 4.58 Component Matrix^a

Variable	Component	
	1	2
ST25Informal garage mechanics provide accurate service .	0.868	
ST28Informal garage mechanics provides services effectively.	0.859	
ST18Informal garage mechanics provide an acceptable standard quality service.	0.851	
ST24Informal garage mechanics provides caring individualized attention to customers.	0.845	
ST22Informal garage mechanic use quality materials to service my vehicle.	0.828	
ST31Informal garage mechanic communicate politely to customers.	0.820	-0.416
ST29Informal garage mechanics service delivering satisfied my expectation.	0.818	
ST23 Informal garage mechanic have ability to convey trust and confidence to service my vehicle.	0.804	
ST30Informal garage mechanics are polite and friendly.	0.793	-0.446
ST20Informal garage mechanics provide services efficiently.	0.761	0.530
ST19Informal garage mechanics provide good service.	0.761	0.480
ST27Informal garage mechanics consulting service satisfies me.	0.746	
ST17Informal garage mechanics have been consistent in quality of their service.	0.739	0.354
ST26Informal garage mechanics provide dependable services.	0.727	
ST21Informal garage mechanics provide prompt service.	0.657	

Extraction Method: Principal Component Analysis.

a. 2 components extracted.

Source: Field survey, 2018

Rotated Factor Matrix table have correlations all above 0.3 and below 0.89. Possible values range from -1 to +1. On the / format subcommand, we used the option blank (0.30), which tells SPSS not to print any of the correlations that are 0.3 or less. This makes the output easier to read by removing the clutter of low correlations that are probably not meaningful anyway.

4.6 *Level of customer satisfaction with motor vehicle garages in TMA*

4.6.1 Customer satisfaction

The descriptive statistics of customer satisfaction with motor vehicle garages in TMA. The mean score of each variable is shown ranging from 3.31 to 3.69. The corresponding percentages are equally given as well.

Table 4.59, indicates how each question is correlated with each of the other questions. Some of the correlations are good as 0.83 and some are low as 0.35. Every variable correlates well any other variable. The assumption that the determinant (located under the correlation matrix) should be more than 0.0001. Here, it is 0.001 so this assumption is met.

Table 4.59 Correlation Matrix

Variable		ST32	ST33	ST34	ST35	ST36	ST37	ST38	ST39	ST40	ST41	ST42	ST43	ST44
	ST32	1.000	.612	.697	.372	.521	.430	.456	.524	.571	.506	.501	.365	.614
	ST33	.612	1.000	.555	.611	.730	.581	.679	.749	.750	.727	.703	.455	.560
	ST34	.697	.555	1.000	.619	.614	.567	.558	.595	.609	.622	.615	.386	.691
	ST35	.372	.611	.619	1.000	.673	.657	.632	.641	.578	.643	.684	.352	.384
	ST36	.521	.730	.614	.673	1.000	.785	.723	.775	.723	.714	.729	.357	.483
	ST37	.430	.581	.567	.657	.785	1.000	.835	.755	.753	.783	.708	.385	.472
Corr.	ST38	.456	.679	.558	.632	.723	.835	1.000	.708	.759	.803	.727	.453	.524
	ST39	.524	.749	.595	.641	.775	.755	.708	1.000	.890	.841	.768	.506	.585
	ST40	.571	.750	.609	.578	.723	.753	.759	.890	1.000	.863	.773	.494	.624
	ST41	.506	.727	.622	.643	.714	.783	.803	.841	.863	1.000	.838	.480	.614
	ST42	.501	.703	.615	.684	.729	.708	.727	.768	.773	.838	1.000	.528	.613
	ST43	.365	.455	.386	.352	.357	.385	.453	.506	.494	.480	.528	1.000	.529
	ST44 I	.614	.560	.691	.384	.483	.472	.524	.585	.624	.614	.613	.529	1.000

a. Determinant = .001

Source: Field survey, 2018

Table 4.60, is the Kaiser-Meyer-Olkin (KMO) which 0.912. The KMO test tells us whether or not enough items are predicted by each factor. KMO value of 0.912 is very good. The Bartlett

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test is be significant (p=0.000 < 0.05); this means that the variables are correlated highly enough to provide a reasonable basis for factor analysis as in this case it is 0.000<0.05.

Table 4.60 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.912
Bartlett's Test of Sphericity	Approx. Chi-Square	1256.432
	df	78
	Sig.	.000

Source: Field survey, 2018

The initial communalities represent the relation between the variable and all other variables before rotation. None of the communalities are low (< 0.30), In this case all the communalities are above 0.3 which is quite good.
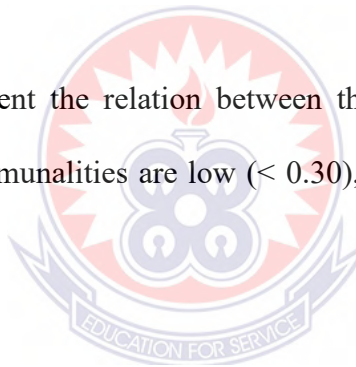
Table 4.61, indicates the Total Variance Explained table which shows how the variance shared among the possible factors. Note that two factors have eigenvalues greater than 1.0, a common criterion for a factor to be useful. When the eigenvalue is less than 1.0 the factor explains less information than a single item would have explained. Factor 1 accounts for 65.681% of the variability in all 13 variables and factor 2 accounted 8.163%. The two factors accounted for cumulative percentage of 73.844 variability.

Table 4.61 Total Variance

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.539	65.681	65.681	8.539	65.681	65.681	5.967	45.903	45.903
2	1.061	8.163	73.844	1.061	8.163	73.844	3.632	27.941	73.844
3	0.769	5.917	79.761						
4	0.544	4.185	83.946						
5	0.467	3.589	87.535						
6	0.374	2.881	90.415						
7	0.291	2.237	92.652						
8	0.266	2.048	94.700						
9	0.231	1.777	96.477						
10	0.167	1.287	97.764						
11	0.112	0.860	98.624						
12	0.096	0.740	99.364						
13	0.083	0.636	100.000						

Extraction Method: Principal Component Analysis.

Source: Field survey, 2018

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Figure 4.8, shows the scree plot. From the scree plot it can again be seen that only two values are above 1.0. The rest of the 12 are below 1.0 and will not be considered.
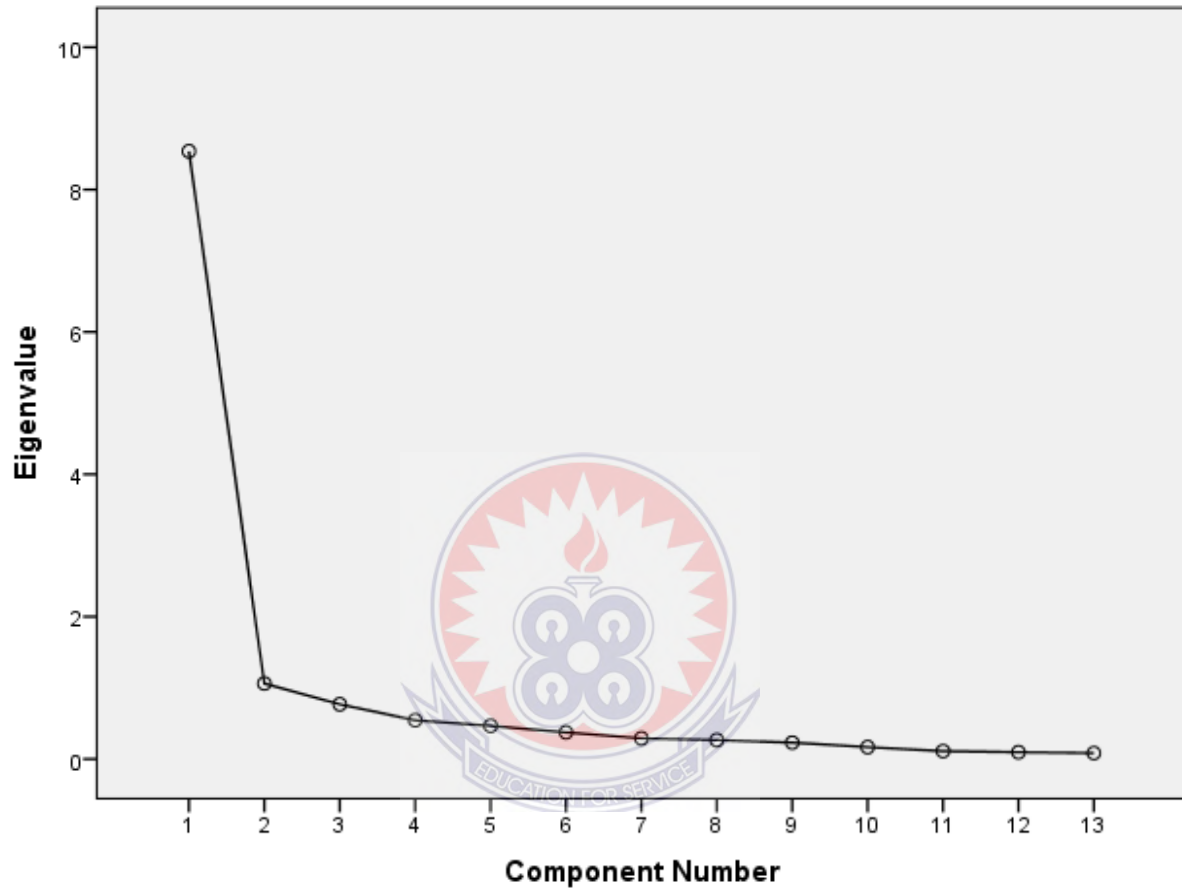

Figure 4.8 Scree plot.   Source: Field survey, 2018

Uunrotated factor loadings presented show the expected pattern, with high positives compare with the negative loadings on the second factors. All loading on the factor 1 are positives, ranging from 0.909 to 0.581. Loading on the factor two are relatively lower ranging from 0.315 to 0.523.

Table 4.62, is the Rotated Factor Matrix table. It is key for understanding the results of the analysis. Because these are correlations, possible values range from -1 to +1. On the / format subcommand, we used the option blank (0.30), which tells SPSS not to print any of the correlations that are 0.3 or less.

Table 4.62 Rotated Component Matrix[a]

Variable	Component	
	1	2
ST37The services provided by informal garages make me feel comfortable in using my vehicle.	0.873	-
ST38Informal garage mechanics make me feel secure to use my vehicle all the time.	0.828	0.310
ST36I am satisfied with my decision to do business with the informal garages mechanics.	0.816	0.323
ST41 I enjoy the services of informal garage mechanic.	0.812	0.429
ST39overall I am satisfied with specfic practice with the informal garage mechanics.	0.792	0.437
ST35Informal mechanics make me feel confident to use my vehicle all the time.	0.763	-
ST40Overall I am happy with specific experience with the informal garage mechanics.	0.760	0.490
ST42Overall, I am satisfied with informal garage mechanics services provided.	0.757	0.457
ST33Overall I am satisfied with specific experience with the informal garage mechanics.	0.659	0.511
ST44 I am always delighted to service my car with informal mechanics services.	-	0.838
ST32Informal mechanics services would make me enjoy my day.	-	0.817
ST34I think, informal garage mechanics can service my car satisfactorily.	0.425	0.721
ST43 I don't regret servicing my car at the informal motor vehicle garages.		0.596

 a. Rotation converged in 3 iterations.
Source: Field survey, 2018

4.7 Customer patronage

4.7.1 Practice of quality service of informal motor vehicle garages

Table 4.63, is the descriptive statistics. The mean score of each variable is shown ranging from 3.26 to 3.96. The corresponding percentages are given as well.

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Table 4.63 Descriptive Statistics

Variable	Mean	Std. Deviation	Analysis N
ST45I always go to Informal garage for servicing of my car.	3.77	1.004	100
ST46Informal garage mechanics charge moderate fee.	3.96	1.024	100
ST47I always patronize Informal garage mechanic service because he had a good image.	3.57	1.075	100
ST48I service my car at informal garage because my friend recommended the mechanic quality service to me.	3.50	1.210	100
ST49I service my car with informal garage mechanics because they are easily accessible.	3.56	1.217	100
ST50I service my car with informal garage mechanics because they exhibit good customer relationship.	3.49	1.176	100
ST51I always service my car with informal garage mechanics because they are friendly.	3.43	1.166	100
ST52I always service my car with informal garage mechanics because they deliver on time.	3.26	1.260	100
ST53I always service my car with informal garage mechanics because I received satisfied services.	3.43	1.208	100
ST54I get good value for my money when I service my car with informal garage mechanics.	3.36	1.291	100

Source: Field survey, 2018

Table 4.64, indicates how each question is correlated with each of the other questions. Some of the correlations are good as 0.75 and only one below 0.3, (0.251). The assumption is that the determinant should be more than .0001 is met. Here, it is .002 so this assumption is met.

Table 4.64 Correlation Matrix[a]

	Variable	ST45	ST46	ST47	ST48	ST49	ST50	ST51	ST52	ST53	ST54
Corr.	ST45	1.000	.531	.656	.611	.446	.422	.379	.631	.549	.478
	ST46	.531	1.000	.397	.375	.423	.377	.319	.290	.251	.217
	ST47	.656	.397	1.000	.640	.371	.504	.326	.530	.633	.556
	ST48	.611	.375	.640	1.000	.569	.394	.340	.609	.646	.627
	ST49	.446	.423	.371	.569	1.000	.547	.548	.470	.370	.391
	ST50	.422	.377	.504	.394	.547	1.000	.574	.424	.426	.495
	ST51	.379	.319	.326	.340	.548	.574	1.000	.453	.412	.413
	ST52	.631	.290	.530	.609	.470	.424	.453	1.000	.695	.668
	ST53	.549	.251	.633	.646	.370	.426	.412	.695	1.000	.871
	ST54	.478	.217	.556	.627	.391	.495	.413	.668	.871	1.000
Sig. (1-tailed)	ST45		.000	.000	.000	.000	.000	.000	.000	.000	.000
	ST46	.000		.000	.000	.000	.000	.001	.002	.006	.015
	ST47	.000	.000		.000	.000	.000	.000	.000	.000	.000
	ST48	.000	.000	.000		.000	.000	.000	.000	.000	.000
	ST49	.000	.000	.000	.000		.000	.000	.000	.000	.000
	ST50	.000	.000	.000	.000	.000		.000	.000	.000	.000
	ST51	.000	.001	.000	.000	.000	.000		.000	.000	.000
	ST52	.000	.002	.000	.000	.000	.000	.000		.000	.000
	ST53	.000	.006	.000	.000	.000	.000	.000	.000		.000
	ST54	.000	.015	.000	.000	.000	.000	.000	.000	.000	

a. Determinant = .002

Source: Field survey, 2018

Table 4.65, is the Kaiser-Meyer-Olkin (KMO) which .686. The KMO test tells us whether or not enough items are predicted by each factor. KMO value of .855is very good. The Bartlett test is significant (p=0.000 < .05); this means that the variables are correlated highly enough to provide a reasonable basis for factor analysis as in this case it is 0.000<0.05.

Table 4.65 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.855
Bartlett's Test of Sphericity	Approx. Chi-Square	608.461
	df	45
	Sig.	.000

Source: Field survey, 2018

Table 4.66, is the initial communalities represent the relation between the variable and all other variables before rotation. None of the communalities are low (< .30), In this case all the communalities are above 0.3 which is quite good.

Table 4.66 Communalities

Variable	Initial	Extraction
ST45I always go to Informal garage for servicing of my car.	1.000	.608
ST46Informal garage mechanics charge moderate fee.	1.000	.541
ST47I always patronize Informal garage mechanic service because he had a good image.	1.000	.621
ST48I service my car at informal garage because my friend recommended the mechanic quality service to me.	1.000	.672
ST49I service my car with informal garage mechanics because they are easily accessible.	1.000	.660
ST50I service my car with informal garage mechanics because they exhibit good customer relationship.	1.000	.601
ST51I always service my car with informal garage mechanics because they are friendly.	1.000	.559
ST52I always service my car with informal garage mechanics because they deliver on time.	1.000	.691
ST53I always service my car with informal garage mechanics because I received satisfied services.	1.000	.858
ST54I get good value for my money when I service my car with informal garage mechanics.	1.000	.797

Extraction Method: Principal Component Analysis.
Source: Field survey, 2018

Table 4.67, is the Total Variance Explained table which shows how the variance shared among the possible factors. Note that two factors have eigenvalues greater than 1.0, a common criterion for a factor to be useful. When the eigenvalue is less than 1.0 the factor explains less information than a single item would have explained. Factor 1 accounts for 54.347% of the variability in all 10 variables and factor 2 accounted for 11.725%. The two factors accounted for cumulative percentage of 66.072 variability.

Table 4.67 Total Variance

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cum. %	Total	% of Variance	Cum. %	Total	% of Variance	Cum. %
1	5.435	54.347	54.347	5.435	54.347	54.347	3.844	38.441	38.441
2	1.173	11.725	66.072	1.173	11.725	66.072	2.763	27.630	66.072
3	0.925	9.248	75.320						
4	0.588	5.877	81.197						
5	0.512	5.115	86.313						
6	0.442	4.417	90.729						
7	0.353	3.525	94.254						
8	0.237	2.373	96.627						
9	0.227	2.274	98.902						
10	0.110	1.098	100.000						

Extraction Method: Principal Component Analysis.
Source: Field survey, 2018

Figure 4.9, shows the scree plot. From the scree plot it can again be seen that only two values are above 1.0. The rest of the 5 are below 1.0 and will not be considered.
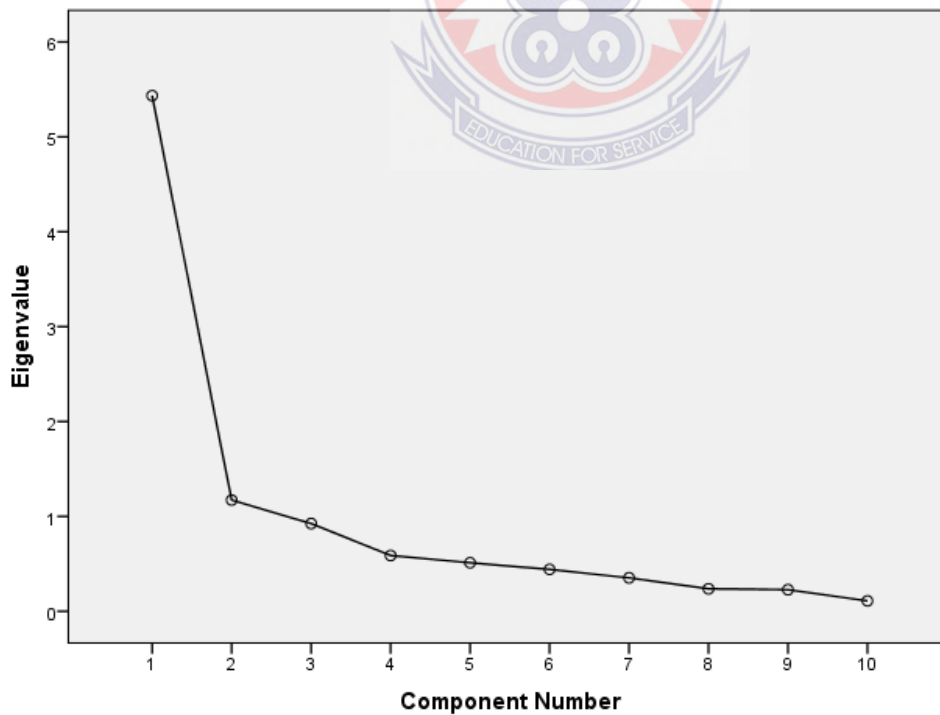

Figure 4.9 Scree plot.   Source: Field survey, 2018

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter is the concluding part which include summary of the main findings of the study, conclusion, and recommendations for the study.

5.2 Summary

From the results 93.5% of the garage mechanic respondents are male and only 6.5 are female. However, a total of 86.5% of the customers of garage mechanics are male and only 13.5% are female. Majority of the garage mechanic respondents, 33.1% age 31-40 years and only 3.2% are above 60 years. Similarly, majority, 32.7% of the customers of garage mechanics also are 31-40 years. A total of 29% of the garage mechanic respondents have technical education, 28.2% have tertiary education and 27.4% have no education. A total of 64.4% of the customers of garage mechanics have tertiary education, 28.2% have technical education and 27.4% have no education at all.

Majority, 70.2% are senior mechanics and the rest, 29.8% are manager/master mechanics. On the issue of their working experience, 24.2% have worked between 9 to 11 years, 21.8% each worked between 12 to 15 years and above 15 years respectively. 15.3% have 6-8 years experience, 12.1% have 3-5 years experience. The rest, 4.8% have up to two years experience. Majority of the garage customers, 58(57.4%) have 0-10 years experience, 26(25.7%) have 11-21 years experience and only 3(3%) have more than 44 years experience.

Overall Cronbach's Alpha is 0.836. This is a clear indication of very high and strong internal consistency of responses.

On the Knowledge and skills of vehicle master craft men, correlations among variables vary between 0.846 and some are low as 0.294. Kaiser-Meyer-Olkin (KMO) which is 0.844 can be described as very good. The Bartlett test should be significant ($p=0.000 < .05$). Two factors were extracted and the "% of variance", the total variability that can be accounted for by each of these factors 1 and factor 2 are 57.073% and 16.675% respectively. The two factors can explain a total of about 73.748% variability among these variables.

Garage mechanics knowledge in transmission system the correlations are good as 0.75 and very few ones are as low as 0.020. The KMO test value is 0.686 which can be describe as normal. The Bartlett test is significant (significance value, $p < .05$). Again two factors are extracted with factor 1 accounting for 53.797% of the variability in all 5 variables and factor 2 accounting for 25.3%. The two factors accounted for cumulative percentage of 79.097 variability.

About garage mechanics knowledge in Electrical and Electronic system, the mean score of each variable ranges from 2.84 to 3.31. Most of the correlations are good as 0.73 (indication of good correlation) and some few ones are as low as 0.0020 (an indication of no correlation). KMO value is 0.785, a good measure. The Bartlett test is also significant ($p = 0.000 < 0.05$). this means that the variables are correlated highly enough to provide a reasonable basis for factor analysis as in this case it is 0.000<0.05. Two Factors were extracted factor 1 accounting for 43.553% of the variability in all 7 variables and factor 2 accounting for 24.623%. The two factors accounted for cumulative percentage of 68.176 variability.

Relative to garage mechanics knowledge in brakes, the mean score of each variable ranges from 3.34 to 4.65. Most of the correlations are as high as 0.768 and very few are as low as 0.135. KMO value of 0.581 is poor. The Bartlett test however is significant (p < .05) this means that the variables are correlated highly enough to provide a reasonable basis for factor analysis.

Two factors were extracted, Factor 1 accounting for 50.27% of the variability in all 5 variables and factor 2 accounting for 31.634%. The two factors accounted for cumulative percentage of 81.904 variability.

Relative to garage mechanics knowledge in transmission system, the mean score of each variable ranges from 4.24 to 4.65. The correlations are between 0.67 and 0.179. The KMO value is 0.686 is good and the Bartlett test is significant (p=0.000 < .05). Only one factor is extracted accounting for 53.925% of the total variability in all 5 variables.

In respect of customer relations with garage managers, customers trust for garage mechanics is good with the mean score of each variable ranging from 3.34 to 4.65. All the correlations are good ranging between 0.799 and 0.412. These values show very good correlations. KMO value of 0.914 is wonderful. The Bartlett test is significant (p < .05); this means that the variables are correlated highly enough to provide a reasonable basis for factor analysis as in this case it is 0.000<0.05. Factor 1 accounts for 64.31% of the variability in all 11 variables and factor 2 accounted for 9.096%. The two factors accounted for cumulative percentage of 73.406 variability.

On quality service of informal motor vehicle garages, the mean score of each variable is shown ranges from 3.18 to 3.58. Most of the correlations are good as 0.75 and very few are as low as 0.020. KMO value of 0.914, is superb. The Bartlett test is significant (p=0.000 < .05) this means that the variables are correlated highly enough to provide a reasonable basis for factor analysis as in this case it is 0.000<0.05. Total Variance Explained table shows two factors extracted. Factor 1 accounts for 63.028% of the variability in all 15 variables and factor 2 accounted for 8.022%. The two factors accounted for cumulative percentage of 71.050 variability.

On customer satisfaction with motor vehicle garages in TaMA, the mean score of each variable is shown ranges from 3.31 to 3.69. The correlation results show very good correlations ranging between 0.83 and 0.35. Every variable correlates well any other variable. KMO value of .912 is very good. The Bartlett test is significant at alpha level of 0.05(p=0.000 < .05) this means that the variables are correlated highly enough to provide a reasonable basis for factor analysis as in this case it is 0.000<0.05. Total Variance Explained table shows two factors extracted. Factor 1 accounts for 65.681% of the total variability in all 13 variables and factor 2 accounted 8.163%. The two factors accounted for cumulative percentage of 73.844 variability.

On practice of quality service of informal motor vehicle garages, the descriptive statistics indicate a mean score of each variable ranging from 3.26 to 3.96. All correlations are good ranging from 0.75 and to 0.251. The assumption is that the determinant should be more than .0001 is met. Here, it is 0.002 so this assumption is met. KMO value of .855 is very good. The Bartlett test is significant (p=0.000 < 0.05) this means that the variables are correlated highly enough to provide a reasonable basis for factor analysis as in this case it is 0.000<0.05. Total

Variance Explained table shows how the variance shared among the possible factors. Factor 1 accounts for 54.347% of the variability in all 10 variables and factor 2 accounted for 11.725%. The two factors accounted for cumulative percentage of 66.072 variability.

5.3 Conclusions

Knowledge and skills of vehicle master craft men, correlates very well among variables. These ranges between 0.846 and 0.294. Customer relations with garage managers, customers trust for garage mechanics is quite good with the mean score between 3.34 to 4.65 with correlations ranging between 0.799 and 0.412. These values shows very good correlations. On quality (customer satisfaction) service of informal motor vehicle garages, the mean score of each variable is shown between 3.18 to 3.58. Most of the correlations are good, 0.75 and very few are low, 0.020. Customer are satisfied with motor vehicle garages in TaMA, the mean score of each variable is shown ranges from 3.31 to 3.69. The correlation results shows very good correlations ranging between 0.83 and 0.35. Every variable correlates well any other variable. KMO value of .912 is very good.

5.4 Recommendation

The researcher recommendations based on the findings are as follows:

1. In future study into this area should be aimed at establishing the courses and effects of the few customer dissatisfaction. This will go a long way to help chatter sustainable strategies for this important informal sector of our economy.

2. The vehicle master craft men should be given some form of workshops training or especially in the area of customer care. It can also be extended into training on new technologies.

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APPENDIX

Appendix I

University of Education, Winneba

College of Technology Education, Kumasi Campus

This questionnaire is designed for informal motor vehicle garages manager's to assess the training needs of informal motor vehicle garages. Be assured that any information given would be used solely for academic purpose and will be treated with the highest confidentiality it deserves. Please your sincere responses are highly needed. Thank you.

SECTION A: DEMOGRAPHICS		
INSTRUCTIONS: For questions 1-6, please kindly select by ticking (√) all that apply, which in your opinion, is the most appropriate answer to the questions			
1	Your gender	Male ▭ Female ▭
2	Your age group	(a) 20below ▭ (b) 21-30 ▭ (c) 31-40 ▭ (d) 41-50 ▭ (e)51-60 ▭ (f)61 above ▭
3	Your highest education level	(a)No formal education ▭ (b)Technical ▭ (c)Secondary ▭ Tertiary ▭
4	Your rank	(a) Manager ▭ (b)Senior mechanic ▭
5	Working experience	(a) 0-2 yrs ▭ (b)3-5 ▭ (c) 6-8 ▭ (d) 9-11 ▭ (e) 12-15 ▭ (f) 16 and above ▭

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S/No.	Variables	1	2	3	4	5
	SECTION C: Knowledge and Skills. Please select the appropriate option by ticking at the right column box using the following scale ;5= strongly agreed; 4= agreed; 3= uncertain ;2=Disagreed; 1=Strongly disagreed					
	Engine					
6	I have knowledge and skills to dismantle an engine.					
7	I have knowledge and skills to assemble an engine.					
8	I have knowledge and skills to time an engine.					
9	I have knowledge and skills to disassemble and assemble cylinder head valves.					
10	I have knowledge and skills for valves adjustment.					
11	I have knowledge and skills to diagnose, service and repair cooling system.					
12	I have knowledge and skills to time starter motor.					
13	I have knowledge and skills to time fuel injection pump.					
14	I have knowledge and skills to diagnose, service and repair ignition system.					
	Transmission system					
15	I have knowledge and skills to diagnose, service and repair of automatic gearbox.					
16	I have knowledge and skills to diagnose and repair					

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	manual gearbox.					
17	I have knowledge and skills to diagnose, service and repair of clutch.					
18	I have knowledge and skills to diagnose, service and repair of gearbox.					
19	I have knowledge and skills to diagnose, service and repair propeller shaft.					
	Electrical and Electronic system					
20	I have knowledge and skills to use scan tool to diagnose and retrieve fault code.					
21	I don't have knowledge and skills of exhaust gas analyser.					
22	I have knowledge and skills to diagnose airbag collision system (SRS).					
23	I don't have knowledge and skills of engine management system.					
24	I have knowledge and skills to diagnose and repair electronic control unit (ECU).					
25	I don't have knowledge and skills on electronic sensors.					
26	I have knowledge and skills to diagnose electronic central door lock system.					
	Brakes					

27	I have knowledge and skills to diagnose, service and repair power assist systems.					
28	I have knowledge and skills to diagnose, service and repair drum brake.					
29	I have knowledge and skills to diagnose, service and repair disc brake.					
30	I have knowledge and skills to diagnose, service and repair TCS (traction control systems).					
31	I have knowledge and skills to diagnose service and repair ABS (antilock brake systems).					
	Suspension and Steering					
32	I have knowledge and skills to diagnose, service, and repair hydraulic power steering assisting unit.					
33	I have knowledge and skills to diagnose service and repair steering gearbox.					
34	I have knowledge and skills to diagnose, service, and repair coil spring.					
35	I have knowledge and skills to diagnose, service, and repair shock absorber.					
36	I have knowledge and skills to service and repair front and rear hubs.					

Appendix II

University of Education, Winneba

College of Technology Education, Kumasi Campus

These questionnaires were designed for car owners and drivers to assess the customer relation and service quality of informal motor vehicle garages mechanic. Be assured that any information given would be used solely for academic purpose and will be treated with the highest confidentiality it deserves. Please your sincere responses are highly needed. Thank you.

SECTION A: DEMOGRAPHICS

INSTRUCTIONS: For questions 1-6, please kindly select by ticking($\sqrt{}$) all that apply, which in your opinion, is the most appropriate answer to the questions

1	Your gender	Male ☐ Female ☐
2	Your age group	(a) 20below ☐ (b) 21-30 ☐ (c) 31-40 ☐ (d) 41-50 ☐ (e)51-60 ☐ (f)61 above ☐
3	Your highest education level	(a)No formal education ☐ (b)Technical ☐ (c)Secondary ☐ (d)Tertiary ☐
4	Your status	………………………………………………………….
5	Driving experience	(a) 0-10 yrs ☐ (b)11-21 ☐ (c) 22-32 ☐ (d) 33-43 ☐ (e) 44and above ☐

SECTION D: Customer Relations. Please select the appropriate options by ticking at the right column box using the following scale ;5= strongly agreed; 4= agreed; 3= uncertain

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S/No.	Variables	1	2	3	4	5
	;2=Disagreed; 1=Strongly disagreed					
	Trust					
1	Informal garage mechanics services make a sense of stability into my life.					
2	Informal garage mechanics make me feel like at home.					
3	Informal garage mechanics service makes me feel safe and secure.					
4	Informal garage mechanics provide security for my vehicle.					
5	I always service my vehicle with informal garages.					
7	Informal garage mechanics can be trusted .					
8	Informal garage mechanics have higher integrity.					
9	I rely on informal garage mechanic for servicing my car.					
10	I believe my mechanics are honest in the profession.					
11	Informal mechanic makes follow up calls to know the condition of my car.					
12	Informal garage mechanics meets my expectations.					

SECTION D: Quality Service. Please select the appropriate options by ticking at the right column box using the following scale ;5= strongly agreed; 4= agreed; 3= uncertain ;2=Disagreed; 1=Strongly disagreed

S/No.	Variables	1	2	3	4	5
	Quality Service					
13	Informal garage mechanics have been consistent in quality of their service.					
14	Informal garage mechanics provide an acceptable standard quality service.					
15	Informal garage mechanics provide good service.					
16	Informal garage mechanics provide services efficiently.					
17	Informal garage mechanics provide prompt service.					
18	Informal garage mechanic use quality materials to service my vehicle.					
19	Informal garage mechanic have ability to convey trust and confidence to service my vehicle.					
20	Informal garage mechanics provides caring individualized attention to customers.					
21	Informal garage mechanics provide accurate service.					
22	Informal garage mechanics provide dependable services.					
23	Informal garage mechanics consulting service satisfies me.					
24	Informal garage mechanics provides services efficiently.					
25	Informal garage mechanics service delivering satisfied					

	my expectation.					
26	Informal garage mechanics are polite and friendly.					
27	Informal garage mechanic communicate politely to customers.					
	Customer satisfaction					
28	Informal mechanics services would make me enjoy my day.					
29	Overall I am satisfied with specific experience with the informal garage mechanics.					
30	I think, informal garage mechanics can service my car satisfactorily.					
31	Informal mechanics make me feel confident to use my vehicle all the time.					
32	I am satisfied with my decision to do business with the informal garages mechanics.					
33	The services provided by informal garages make me feel comfortable in using my vehicle.					
34	Informal garage mechanics make me feel secure to use my vehicle all the time.					
35	Overall I am satisfied with specific experience with the informal garage mechanics.					
36	Overall I am happy with specific experience with the					

	informal garage mechanics.					
37	I enjoy the services of informal garage mechanic.					
38	Overall, I am satisfied with informal garage mechanics services provided.					
39	I don't regret servicing my car at the informal motor vehicle garages.					
40	I am always delighted to service my car with informal mechanics services.					
	Customer patronage					
41	I always go to Informal garage for servicing of my car.					
42	Informal garage mechanics charge moderate fee.					
43	I always patronize Informal garage mechanic service because he had a good image.					
44	I service my car at informal garage because my friend recommended the mechanic quality service to me.					
45	I service my car with informal garage mechanics because they are easily accessible.					
46	I service my car with informal garage mechanics because they exhibit good customer relationship.					
47	I always service my car with informal garage mechanics because they are friendly.					
48	I always service my car with informal garage mechanics					

	because they deliver on time.					
49	I always service my car with informal garage mechanics because I received satisfied services.					
50	I get good value for my money when I service my car with informal garage mechanics.					