

SURVEY OF THE SKILLS NEEDED FOR STARTING AND DEVELOPING OF AN
AUTOMOBILE BODY BUILDING WORKSHOP AS A SMALL SALE ENTERPRISE IN
MINNA, NIGER STATE

BY

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2012/1/42235BT

DEPARTMENT OF INDUSTRIAL AND TECHNOLOGY EDUCATION,
FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA, NIGER STATE.

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A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF INDUSTRIAL AND
TECHNOLOGY EDUCATION, SCHOOL OF SCIENCE AND TECHNOLOGY EDUCATION,
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DECLARATION

I, SANNI Rahmat, **with matriculation number** 2012/1/42235BT. **An** undergraduate student of the Department of Industrial and Technology Education, certify that the workembodied in this project is original and has not been submitted in part or full for any other diploma or degree of this University.

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CERTIFICATION

This project has been read and approved as meeting the requirements for the award of B.Tech degree in Industrial and Technology Education, School of Science and Technology Education, Federal University of Technology, Minna.

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DEDICATION

This project is specially dedicated to Almighty God, who bestowed me with His divine mercy, guidance, protection, knowledge, wisdom, understanding and success throughout my course of study, my wonderful parents Mall. Sanni Umar and Mallama. Sanni Maryam and also to my late baby Sister, Rabi Sanni.

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Abstract

The study investigated on the skills needed to start and develop an automobile body building business as an enterprise in Minna, Niger State. Three research questions and two hypothesis tested at 0.05 level of significance were formulated to guide the study. A survey research design was adopted for the study. A total of 85 respondents comprising of 35 respondents as Panel beaters from Minna, 30 respondents as Client from Shiroro and 20 respondents as Apprentice from kateregi who were respondents to the instrument that was utilized for data collection. A structured questionnaire developed by the researched and validated by three experts was used for data collection for the study. The reliability coefficient of the instrument was 0.73 through mean and standard deviation were the statistical instrument used to analyze the data collected for the study and t-test was employed to test the hypotheses at 0.05 level of significance. The findings and others revealed that panel beaters agrees that technical skills in body building process were needed in starting and developing of an automobile body building workshop and also reveals ways of acquiring the needed skills. Base on the findings of the study, the following recommendations were made among others. Organizations of workshop/seminars/capacity buildings for panel beaters to teach them about employability skills and innovations in automobile technology. Government, NGO, Banks and individuals should come to the aid of automobile panel beaters by granting them soft loans or grants to finance their workshops and establish new ones. The land tenor system should be made flexible enough to enable the automobile panel beaters to secure lands for establishments of a facility which is the impact of automobile workshop.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Small-scale enterprises (SMEs) are one of the developing world's most powerful economic forces. They are the key sector of thriving globally competitive industries, creating the large numbers of jobs needed to reduce poverty. In the right business environment, SMEs can grow into large firms, changing the game locally, carving their niche globally. But even if remaining small or mid-size, they can create significant income opportunities for their workers and generate new tax revenues for government services. They do so by boosting their productivity and sales and supplying increasingly valuable goods and services. The best ones cannot stay competitive if they stand alone. They are part of dynamic and growing value chains whose job opportunities raise incomes, increase living standards, and improve lives. The process starts with supportive governments that create the right policy environment, and then grows from there. The federal government of Nigeria and economic experts have fully recognized small scale enterprises as the core instrument of economic progression and a key factor in promoting private sector development and partnership. The growth of small scale enterprise is therefore an indispensable component in the development strategy of most economies and holds specific importance for Nigeria. Small scale enterprises not only contribute significantly to better-quality living standards, they also bring about substantial local capital formation and achieve high levels of productivity and capability. Small scale enterprises are increasingly recognized as the principal means for achieving equitable and sustainable industrial diversification and dispersal; and in most countries small scale enterprises account for well over half of the total share of employment, sales, and value added. A major gap in Nigeria's industrial development process in

the past years has been the absence of a strong and masculine small and medium enterprises sub-sector (small scale enterprises).

Micro, Small and Medium Enterprises (small scale enterprises) were defined by the Council as an industry with a labour size of 11-100 workers or a total cost of not more than N50 million, including working capital but excluding cost of land (NCI, 2001). Small scale businesses normally serve as training stations for the acquisition of the skills needed for managerial, supervisory and technical manpower, small scale enterprises are spatially diversified, they provide practical training opportunities and skills (Osuala, 2004).

The Federal Government Small Scale Business Development Programme (SBDP, 2004) defined a small-scale business as any manufacturing, processing or service industry with a capital investment not exceeding ₦150,000.00 in machinery and equipment and employing not more than fifty workers. In the same vein, Babangida (1990), referred to small scale enterprises as those which do not employ more than fifty (50) employees and have initial capital equipment of ₦600, 000. Similarly, Central Bank of Nigeria in its credit guidelines to banks in 2009 defined small-scale enterprises as a company whose capital investment (including land and working capital) does not exceed ₦10 million or whose turnover was not more than ₦25 million per annum.

One of the commonest features of small scale enterprises is that they are either sole proprietorships or partnerships. Even when they register as Limited Companies, this is merely on paper, as their true ownership structure is one-man or partnership. Secondly, most small-scale enterprises have labour intensive production processes, centralized management and have limited access to long-term capital; even their access to short-term financing is limited and sometime attained at a penal rate of interest and other conditionality.

Small scale enterprises are as much an important economic catalyst in industrialized countries as they are in the developing world. In many developed countries, more than 98% of all enterprises belong to the small-scale enterprise sector. 80% of the total industrial labour force in Japan, 50% in Germany and 46% in USA are employed in smaller firms. In USA, small business contributes nearly 39% to the national income. Figures in many developed countries are even higher. Many studies have indicated that the revival of interest in small scale enterprises in the developed economies is due to technological as well as social reasons, namely, the growing importance of knowledge and skill-based industry as against material and energy-intensive industry.

The automotive industry plays both a tactical and catalytic role in economic development in respect to employment creation. According to the International Organization of Motor Vehicle Manufacturers (OICA), the auto industry directly employs over nine million people, 5% of the world's total manufacturing employment. In South Africa, the auto industry alone contributes 7% of GDP and 12% of exports, and is the second largest employer of labour. The beneficiation of raw materials and local industrialization through the value chain which spans a range of activities including design and development, manufacturing and service related activities such as marketing and sales and maintenance/after sale service. Small, Medium and Micro-Enterprises (SME) development in respect of automotive parts, components and services. The manufacture of vehicles has evolved over the years and has been a trajectory blazer in the development of production methods, from mass production, quality control, lean manufacturing, and computer aided design. The auto industry worldwide spends over US\$100 billion annually on R&D according to OICA. An automotive industry will create significant good quality employment and a wide range of technologically advanced manufacturing opportunities. This industrial base can then form the foundation of other modern advanced manufacturing activities. For example,

commercial vehicle production will lead to the manufacture of agricultural, mining and railway equipment, military hardware and transport.

The Nigerian automotive industry currently assembles only commercial vehicles as they are easier to produce, while Nigeria needs car assembly/production to fully benefit from the industry's potentials. A total of about 400,000 vehicles (100,000 new and 300,000 used) valued at over N550 Billion (US\$3.451 billion) were imported in 2012. However, there are investors, both local and foreign, who are planning to establish and/or expand existing plants with appropriate incentives and fiscal measures. Potential value added, if imports were locally assembled today will be N100 billion, with additional value incidental if local content programs are vigorously pursued. At full capacity, the Nigerian automotive industry has the potential to create 70,000 skilled and semi-skilled jobs along with 210,000 indirect jobs in the SMEs that will supply the assembly plants. 490,000 other jobs would also be created in the raw materials supply industries. Currently, 2,584 people are directly employed by the assembly plants. The manufacture of vehicles would enable us acquire the technologies of mass production, quality control, lean manufacturing, computer aided design, manufacturing and engineering, which we can use to develop other sectors of the economy and industrialize.

In the context of this study, small scale automobile enterprise refers to a small business that can be run from a workshop that an individual can run themselves or with few employees/apprentices; it can consist of rendering or selling services. Also, it is defined as an industry with a labour size of not more than ten workers, or total cost of not more than half a million, including working capital but excluding cost of land. Automobile technology according to Penn (2009) is the activity of designing and constructing automotive (a self-propelled land

vehicle usually having four wheels and an internal combustion engine, used for both personal and public transportation).

Automobile body building workshop are popular know in Nigeria as “panel beater workshop” to describe a workshop where repairs of vehicle bodies back to its their factory state after having been damaged. Elobuike (2004), identified the following components of automobile body building where different skills areas are required; and individual needs to be competent in;

- Fix the structural and cosmetic elements of a vehicle
- Fix dented fenders, a cracked windshield and types of paint jobs
- Realigns car frames and chassis, patches, dent and applies new finishes
- Retrieve key from locked automobile
- Have general maintenance skills

All these areas require technical and employability skills while working on them and towards establishing a small-scale business enterprise.

Technical skills are those specialized knowledge and skills needed for performing certain duties; it is a broader skill and each of them includes a number of specific skills that a person must possess for completing those technical tasks (Osinem, 2010). Technical skills can also be defined as the specific talents and expertise to which knowledge can be used practically. Employability skills are group of essential abilities that involves the development of a knowledge base, expertise level and mindset that is increasingly necessary for success in the modern-day workplace. There are basically eight employable skills required; no matter what sector one works and they are; communication, teamwork, problem solving, initiative/enterprise, planning/organizing, self-management, learning and technology. These skills expose the employees to the fact that they need to apply some level of reasoning in carrying out the assigned

responsibilities. The affective skills aspect of employability skills focuses more on the interaction between employees in the work-place. The importance of good working relationship does not only lead to achieving the organizational goal but also helps the employees/apprentices succeed in today's working world. It is a well-known fact that success or failure of any enterprise depends to a very great degree on the skills possessed by the owner of the enterprise; therefore, it is necessary to assess the developmental and technical skills possessed by these small-scale automobile body builders. In spite of the relevance of these skills for the success of small scale automobile enterprises. Automobile body building workshops in Minna, Niger State still carry out their operations in such a way that shows the lack of technical and employability skills and hence, it is against this background that this study attempts the need for assessing small scale automobile body building enterprise of their developmental and technical skills possessed by small-scale automobile body builder in Minna, Niger State.

1.2 Statement of the Problem

The automobile industry is widely regard as the greatest engine of economic growth in the world and it has been famously called 'the industry of industries'. The fortunes of the local automobile industry in Nigeria have been on a downward slide over the years fueled by vehicle and spare parts importation. The result has been huge capital flight out of the country with the resultant implication on job creation and loss of economy. The sector has low market concentration with the majority of businesses holding a small share of the market. In Nigeria, the automobile industry appears to be lucrative especially its sales, transportation and maintenance activities. However, the automobile workshops and their working environments lack good infrastructural facilities. The industry operates more in the informal sector of the economy. This research defined the problem of the skill needed for starting and developing of an automobile body

building workshop as a small-scale enterprise, their layout and their working environments. It discussed concepts of creativity and innovation, factors supporting and promoting creativity and innovation.

It is common to notice that the automobile body building workshops in Minna look primeval. The working environments lack good infrastructural facilities. The sector is lacking of the technical and employability skills needed for starting and developing of an automobile body building workshop as a small-scale enterprise. Also, they do not possess the required workshop, diagnostics skills and equipment, problem solving skills, coordination and dexterity in handling mechanical and structural faults; they lack the basic technique of communication, decision-making, management and organizational processes as well as poor personal images and good grooming, attitudes, habits and behavior which are necessary skills for today's motor vehicles body builder (panel beater).

Therefore, these necessitate the need to assess the skills needed for starting and developing of an automobile body building workshop as a small-scale enterprise in Minna, Niger State with a view to improving the technical, employability and managerial skills of automobile body builder for success in their small-scale business enterprises and making them functional.

1.2 Purpose of the Study

The focus of this research is to survey the most significant skills needed for starting and developing of an automobile body building workshop as a small-scale enterprise in Minna, Niger state. The study is to determine:

1. Skills needed for starting and developing of an automobile body building workshop as a small-scale enterprise in Minna, Niger state

2. The constraints hindering the startup and development of an automobile body building workshop as a small-scale enterprise in Minna, Niger state
3. The strategies that could facilitate the skill needed for starting and developing of an automobile body building workshop as a small-scale enterprise in Minna, Niger state

1.3 Significance of the Study

The study will be of immense benefit to automobile trade graduates, artisans, technical teachers, National Board for Technical Education, Automobile Industries, Government and educational researchers. The acquisition of modern diagnostic skills identified in this study will enable automobile graduates to become self-reliant, self-employed and employers of labour. The findings will also enable automobile graduates to acquire new competencies for servicing and repair of modern vehicles in order to remain relevant in the automobile industry. The automobile diagnostic skills identified in this study when integrated into the curriculum could help the technical college students of automobile to acquire new set of skills required for servicing and maintenance of modern vehicles. Students will also be exposed to new body of knowledge/content on modern cars so as to enhance their understanding of their working principles and how to handle complex fault in them.

Automobile teachers will benefit from the findings of this study by identifying areas of automobile technology where students are deficient and on which they may need to update their technical competence for the production of enterprising graduates who will be productive in paid or self-employment. Teachers through the findings of this study will also identify outdated technologies in curriculum content that should be given less emphasis while the technologies will be given adequate recognition in the training of automobile students. Automobile teachers will equally use the findings of the study to master these new diagnostic skills as a means of

enhancement towards productivity and adaptability. Hence, updating their skills will remain paramount with constant advancement in frequent changes in automobile technology. This will be attainable when technical teachers attend planned retraining and improvement programmes that takes practical and new skills in automobile technology into cognizance.

National Board for Technical Education which is solely responsible for planning and reviewing the technical college curriculum will through the findings of this study become aware of diagnostic skills required by automobile graduates in the maintenance of modern vehicles. National Board for Technical Education could use these identified skills to update the pedagogy and components of the curriculum for automobile in technical colleges. This could make the curriculum more activity centered thereby stimulating the interest and motivation of students towards the automobile trade. Artisans who are products of the informal automobile sector or apprenticeship programme will benefit from the findings of this study by becoming more enlightened on the automobile diagnostic technologies and strive towards updating their knowledge and skills in line with the identified diagnostic skills. This will enable them to keep pace with technological improvements for performing optimally and remain relevant in the modern automobile industry.

Automobile servicing companies will equally find the result of this study very beneficial when incorporated into the curriculum content of automobile in technical colleges as it will produce a pool of highly skilled automobile graduates (craftsmen) who will be versatile and adaptable to the dynamic nature of modern vehicles, thereby enhancing the performance and productivity of the automobile industry towards the sustenance of Nigeria's economic and industrial growth. The findings of this study will sensitize the government on the performance gap between technical skills acquired by graduates of automobile in technical colleges and the requirements of

modern automobile industries. Hence, the government will be encouraged to organize retraining programmes and skill improvement workshops for instructors of automobile whose responsibility it is to impart technical skills on students for gainful employment upon graduation.

1.4 Scope of the Study

The research study is limited to the identification of the skills needed for developing of automobile body building workshop as a small-scale enterprise in Minna and Nigeria at large, in which responses will be taken from automobile panel beaters and automobile owners(clients). Thus, this study is expected to throw some light into the working of automobile body building as a small-scale enterprise in the automobile industry. However, the research focused on small scale automobile body builder workshop.

1.5 Research Question

The following research questions are formulated to guide this study;

1. What are the skills needed for starting and developing of an automobile body building workshop as a small-scale enterprise in Minna, Niger state?
2. What are the constraints hindering the startup and development of an automobile body building workshop as a small-scale enterprise in Minna, Niger state?
3. What are the strategies that could facilitate the skill needed for starting and developing of an automobile body building workshop as a small-scale enterprise in Minna, Niger state?

1.6 Hypotheses

The hypotheses for the study were formulated and will be tested at 0.05 level of significance:

H0₁. There will be no significant differences between the mean response of automobile body builders and clients (vehicle owners) regarding the skills needed for starting and developing of an automobile body building workshop as a small-scale enterprise in Minna, Niger state.

H0₂. There will be no significant differences between the mean response of automobile body builders and clients (vehicle owners) regarding constraints hindering the startup and development of an automobile body building workshop as a small-scale enterprise in Minna, Niger state.

H0₃. There will be no significant differences between the mean response of automobile body builders and clients (vehicle owners) regarding the strategies that could facilitate the skill needed for starting and developing of an automobile body building workshop as a small-scale enterprise in Minna, Niger state.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

In this chapter, literature related to this study is reviewed under the following sub-topics:

- The automobile industry
- Automobile body building/panel beating
- Automobile body building workshop
- Skills needed to setup an automobile workshop as a small-scale enterprise
- Constraints hindering the skill needed for starting and developing of an automobile body building workshop as a small-scale enterprise
- Consequences of lack of skills needed for starting and developing of an automobile body building workshop as a small-scale enterprise
- Recommendation for small scale automobile body building workshop
- Summary of related literature

2.1 The Automobile Industry

The automotive industry began in the 1890s. The automobile is a primary mode of transportation for many developed economies. The automobile industry remains one industry that has largely embraced technology while still creating jobs in large numbers. The Automobile industry in Nigeria started far back before Nigeria got her independence in the year 1960. The western world introduced the use of automobile to Nigeria when oil was booming in the 70s, through corporation with Nigerian government and issuing of license of operation and control policy, established six Automobile assembly plants in Nigeria, namely Peugeot Automobile Nigeria limited (PAN) Kaduna in 1975, Volkswagen of Nigeria Limited (VWON) Lagos 1978, Anambra Motor Manufacturing Limited (ANAMMCO) Emene – Enugu (1980); Steyr Nigeria Limited

Bauchi, National Truck manufacturers (NTM) Kano Fiat Production, LeyLand Nigeria Limited (LNL) Ibadan, between 1970 and 1980 (Akiagwe 2010). The establishment of the six-automobile assembly plant in Nigeria brought quick development to the country. According to Aganga (2013), the minister of trade and investment stated that “automobile industry is an engine of growth and stimulus to other economic activities like creating of employment opportunities growth of other satellite industries, enhancement of technology transfer of skill acquisition” since the establishment of the six automobile industries in the country, the economy of the country has improved tremendously because refined petroleum product are easily transferred from point of production to fuel filling stations. Farm produce are easily transferred from the northern part of the country to the South, West and eastern part of the country visa-vis. Human beings was able to travel with less stress from one location to another. Compared to when man was using animals as means of transportation.

Since in the year 2000, it has been recorded that there is a decline in the production of Automobile, some of the Automobile industries that were established between 70s and 80s are no longer in operation, as a result of challenges that has befall them. About 75% existing Automobile companies in Nigeria today deal only on car sales, about 80% of Automobile used in the country today are fairly used cars popularly known as Tokumbo (Okuhu 2011), because of the decline in Automobile production in Nigeria. It is very pertinent that this study will look into some of the challenges facing Automobile industries in Nigeria. Also find possible solution on how some of these challenges can be solved to enhance production.

2.2 Automobile Body Building/Panel Beating

An automobile body builder/panel beater is used in some countries to describe a person who repairs motor vehicle bodies and motor vehicle chassis back to their factory state after having

been damaged in a motor vehicle accident or collision. They do this using many skills such as auto body repairs and metalworking techniques which includes welding and brazing as well as the use of lead and various body putty and spray fillers used for repairing body panels and parts which hide the damage, and this is what we call panel beating. Accident damage repairs may require the panel beater to either repair or replace the various parts of the motor vehicle in question and spray paint these areas. These parts may be made from various metals including various types of steels and alloys and also many different types of plastics, rubbers, fiberglass and carbon fiber composites.

A panel beater will work on everyday types of motor vehicles such as cars, vans, 4X4 vehicles and trucks. Specialized panel beaters would undertake to repair damage sustained to aero planes and motorcycles and perform custom paint jobs. Panel beaters also work exclusively on restoring old cars and do not take on accident damaged vehicles in for repairs.

The panel beater of today has an array of complicated jobs to rectify at each workstation that must be accurately fulfilled. Attention to detail is key in all departments and careful consideration has to be paid to the stripping and assembling of each vehicle and all its factory fitted panels, computer aided wiring circuits and other parts before the finished product is rolled into the spray booth for the final spray painting process. The following are the skills required to be a skilled automobile body builder/panel beater;

- The ability to use a range of tools.
- The ability to work methodically, paying attention to detail.
- The ability to follow written and verbal instructions.

The following are the activities carried out by an automobile body builder/pane beater;

- Fix the structural and cosmetic elements of a vehicle.
- Fix dented fenders, a cracked windshield and types of paint jobs.
- Realigns car frames and chassis, patches dent and applies new finishes.
- Assessing damage and deciding how to repair it.
- Removing damaged panels or parts for repair.
- Smoothing out minor dents in panels.
- Filling small holes or rusted areas with filler.
- Making body panels and sections and welding them into place.
- Refinishing the repair to match surrounding areas.
- Keeping a record of all work completed to show customers.

Auto Body Building and Upholstery Service: Body and fender work, although separate from mechanical repair, is an important part of a garage's work. The body and fender mechanic will repair damage to the car's metal structure, the upholstering, and inside trim. The body and fender specialist will install glass, repair locks, handles etc. This job requires proficiency in cutting, welding, metal bumping, filling, priming, painting, etc. within the field of body and fender work, the actual painting is rapidly becoming a specialty of its own (Stockel and Stockel, 1984). Giri (2010) outlined the following skill requirements when carrying out auto body work; The body work has to be structurally strong, easily accessible and of good finish. Some of the important considerations for a good body work include the following:

- Attractive body styling.
- Upholstery work should be well trimmed and comfortable.
- Body structure should be rust preventing.
- Paint work and other finishing should be appealing.

- Body should be structurally strong and light.
- Doors and window should be conveniently located, and easier to operate.
- Controls should be located at convenient positions and should be approachable.
- Arrangement of hand controls and foot pedals should be fool proof and untiring.
- Provision of sufficient space for accommodating accessories, instruments and controls.
- Drivers and passengers seat should be comfortable and adjustable and should be conveniently located.
- Interior cabin should be dust proof and sound proof.
- Body should be equipped with sufficient safety provisions.

Denting: Is the process of body repair followed by refinishing so as to bring the body to its original look. It mainly involves sheet metal work on the damaged body panels and fenders. The denting is also called dinging, which involves the processes such as bending, flattening, shearing, filing, chiseling, hammering, sanding, patching, soldering, welding, painting, colour matching, etc. which should be carried out with a high degree of proficiency. The necessity for denting of a vehicle arises due to;

- Junked fender, doors or panels,
- Depressed, buckled or twisted panels,
- Formation of ridges on some location,
- Damaged/ wrinkled panel,
- Protruding sheet metal, and
- Occurrence of patches and scratches. Special tools and equipment are used for denting works and should be handled carefully.

Frame Repairs: Defects in frame and body generally occur due to severe impacts on rough roads and collision with other objects or vehicles. Depending upon the nature of collision, the defects of the following kinds may occur.

- Misalignment in horizontal and/or vertical plane.
- Twisting of main frame and/or sub-frames.
- Buckled main frame and/or sub-frames.
- Bent side members and/or dumb iron.
- Broken or loose gusset plates and rivets.

Whenever the vehicle is subjected to a major collision, the frame alignment must be checked. A visual check generally reveals major misalignment, but in case this fails to indicate the defect, the frame check is conducted as follows;

- Wheel base check: The front wheels are set in the straight-ahead position and the wheel base on each side is checked.
- Alignment: To verify parallelism of the rear wheels with each other, a cord or straight edge is held against the rear wheel.

Then the front wheel is turned until it is parallel with the cord. The clearance between the wheel and cord should be the same on both sides. Frame straightening is a specialized repair and is carried out by using jacks and chains. If the frame has not been heat-treated, it is possible to heat the damaged member to ease the straightening operation (Rajput, 2007).

Seat Locations and Securing: Seating accommodation must be comfortable, sufficient leg-room for passengers must be available, and the driver's seat must be positioned suitably to control the accelerator and clutch, and to provide effective leverage to the brake pedal for emergency. The seat must provide adequate support to the lower part of the body and back, and

against any lateral forces if experienced. The seats must be positioned suitable for good visibility towards the front and sides, and for the driver's natural arm movement to steer and change gear with the minimum of effort. The lower the seating position relative to the floor, the more the legs are straightened out requiring increased leg-room in front. On the other hand, a high-mounted seat bends the legs so that far less leg-room is necessary (Giri, 2010).

2.3 Automobile Body Building Workshop

A workshop, 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. Therefore, an automobile workshop is a place where basic vehicle maintenance is being carried out by auto mechanics or motor vehicle mechanic. Hiller and Coombes (2004) defined a motor vehicle mechanic/ body builder as skilled personnel who specialized in automobile maintenance, repairs and sometimes modification. Penn (2009), defined an auto mechanic as 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 automobile body builder should 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), 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 technical skills for the operation of automobile

workshop. Technical 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). 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.

2.4 Skills Needed to Setup an Automobile Workshop as A Small-Scale Enterprise.

Starting an automobile body builder workshop business is a competitive business, but if you learn what to do to maximize your odds of success before venturing into the business. To start an automobile body builder workshop business, you will decide how you want to your day to day operation (working hours), Shop rental fees, what type of cars would be fixed at your workshop (automobile, collision repair, medium – heavy truck, school bus, transit bus, truck equipment), will you provide home services, how many apprentices you intend having, vehicle options, set up at an ideal location, and follow all regulatory requirements for running this type of business.

If you can handle the risks involved with automobile body builder workshop business, you are good to go. If you are a person that can deal with automotive problem and can provide solutions for any car trouble, then starting an automobile body builder shop is the best idea for you. However, before becoming an automobile body builder or putting up your own shop make sure that you got proper license.

Get Adequate Training: It is important to note that if you have not been trained on the nitty-gritty to become an auto automobile body builder, then you need to get trained. The duration of the training depends on your ability to grasp what you are being taught. It is always advisable to enroll at an established auto automobile body builder workshop or at best, a technical school.

Acquire A Garage/Workshop: Having successfully completed your apprenticeship alongside a proper licence to operate, acquiring a garage/ workshop will follow suit. Ideally, your automobile body builder shop should start within a strategic location where you are well known. I would

advise you stay close to major roads. Even If you are not going to rent a garage to run your business, it is very important that you register the business with the Corporate Affairs commission (CAC). You should put into consideration a large garage where you can possibly add lifts, car wash, reception, toilet neat and comfortable for both workers and customers as we posit a brighter future for the business. On top of that, ensure the workshop has a correct drainage installed in case.

Acquire Good Specialty Tools: With a workshop now in place, starting an automobile body builder business also means all your tools must be in place. Not just tools, nice specialty tool to fast track your work and make your workshop distinct from existing automobile body builder workshops. Tools such as ring and open-end spanners, voltmeter, diagnostic scanners, hand held automobile body builders' lamps, air guns and lines, micrometer, dial gauge, tachometer, rolling oil pans, circlip pliers Cooling fluid pans, bearing pullers. Others include; simple pipe bender for making a special exhaust joiner, cooling system tester to suit different radiators, tire changer accessories, tire pressure gauge, air Pressure Regulator, tire lever, wheel balancer accessories, brake lathe accessories, wheel ramps and safety equipment like goggles, ear protection, first aid kit, fire extinguisher, spill kit, signage, oscillating fan, exhaust extraction reel.

Hire capable hands: Venturing into an automobile body building business undoubtedly one will need more hands. You will need at least one or two apprentices to handle some automobile body building works. The hiring process ideally should start the very one sets up your automobile body building workshop. This to ensure they are capable of any job assigned to them and selecting the best candidate for your automobile body building workshop who would be able to work even in your absence.

Commented [1]:

Advertise Your Automobile body builder Workshop: The best strategy to adopt to be able to secure clients is to print your business card, move around offices, organizations, to inform them about your workshop. The business card should be informative clearly stating the nature of services you provide and how you can be contacted. It is very necessary for an automobile body builder to establish a cordial relationship with mechanics, because they in the best position to refer clients.

High Display of Competence and Integrity: One crucial aspect of the business is your ability to convince your customers to return to your workshop and this is only possible when you display competence and integrity at every given opportunity.

It is very important to note that most of the clients you would be working for, are people who will be coming to your workshop for the first time and they more likely to recommend their friends and family. If you give them any reason to doubt your competence, you are likely not going to get a repeat business from them. You must ensure that you do a perfect job that will make them long for service. If you care about your work, customers will care about using your workshop to do all their automobile body repairs and servicing, so you need the right tools and equipment to do a broad range of work.

2.5 Constraints Hindering the Skill Needed for Starting and Developing of an Automobile Body Building Workshop as a Small-Scale Enterprise

According to a survey of the American manufacturing workforce, (2005) in a “skill Gap Report” exposes many factors that broadens gap between the availability of skilled workers and the employees’ performances requirements of small scale automobile body builders to includes;

Relative Unattractiveness: Employers reported in interviews that youth tend to “go into computers” because they perceive desk jobs to be easier, more lucrative and more consistent with their overall lifestyle choices. This barrier may be derived from the fact that small scale automobile trades are relatively unattractive because they lack the cachet of “white collar” jobs. Their perceptions are that skilled trades are cold, dirty, outdoor, seasonal, boom and bust occupations that involve repetitive work, low job satisfaction, and little imagination for even less compensation.

Lack of Proper Information: Bloom (1998) asserted that employer and employees are often poorly informed about opportunities in the automobile body builders’ trades, especially regarding working conditions, job satisfaction, and opportunities to learn new things.

Lack of Awareness of Employer Expectation: Kurtis (2001), stated that employees or students who are not properly exposed to the realities of the skills in the automobile body builders’ trades will not know whether they are suited to particular trades on the basis of previous workplace reality focused career exploration, aptitude testing or the like. For example, employees may not realize that the skilled trades (automobile body builders) like other occupations in today’s customer oriented, just in-time delivery workshops require solid information and communications technology skills, as well as strong communications, problem solving and teamwork skills; and a positive work ethic in addition to job specific technical skills and knowledge.

Lack of Clear Career Paths: Lack of clearly defined, well mapped out and thoroughly articulated career paths limits entry in the automobile body builders’ trades to relatively small number of people who can navigate a very disjointed system of institutional gateways (penny,

1998). The majority will choose, instead, clearer and more direct routes into other professions competing for their attention.

Lack of Training Standards Barrier: Skilled Trades Employers Speak Out, (2002) that employers may not fully understand the implications of having a dedicated journey-person on staff or even be aware of up to date or consistent training standards, if they exist at all. If the training standards are not aligned with contemporary business practice, there is a disincentive for employers to adhere to those standards or follow through with an apprentice.

Mismatch of Workplace Schedule with Training System: Employers cannot always justify sending apprentices off for classroom training when training providers happen to be offering relevant segments of their apprenticeship courses (Ottawa, 1998). Such decisions also have to make business sense and correspond troughs in the business cycle related to an apprentice's responsibilities in the workplaces.

Perceived Lack of Apprentice Loyalty: Employers fears investing in apprentices if they are not going to reap the benefits of training them in the long haul, e.g. if apprentice move on and take their training with them (Morley, 2001).

Credentialing: Apprenticeship as it is currently conceived and operated in an all or nothing proposition. One either becomes in a skilled trade person or disappears into the ether of the apprentice of indeterminate years standing in a given trade. In the skilled, automobile body builders' trades, there are no portable intermediate credentials, which affect the retention of apprentices and their journey to skilled trade person status. Portable qualifications may also raise retention issues insofar as semi qualified trades people could migrate with more assurance of acceptance elsewhere than were they travel without any qualification at all (Stephanie,2001).

The “Closed Shop”: According to Stephanie (2001) automobile body builders limit the supply of skilled people in the trades by restricting the entry of new apprentices into the workplace. It is in the interests of unionized workers who want to keep their jobs and the relative demand for their services high so as to keep their wages high. Nepotism, or who you know, rather may have more to do with successful entry into the skilled trades than what your skills and abilities are under this kind of regime.

Furthermore, Thembe et al, 1997 enumerate some factors that are generally agreed on as the constraints to the growth of automobile small scale enterprises especially in the African setting. These include lack of market opportunity, access to finance, enabling environment, managerial skill and level of education.

Lack of Market Opportunity: In the poor countries, effective demand and consequently market opportunity is a constraining factor for small scale automobile enterprise and indeed beg business development. This may not be the case in develop countries. The level of development itself imposes additional constraints to auto body builders small scale enterprise growth. Because of the usage of low level technology, small scale automobile body builders’ enterprises cannot compete with large enterprises that have benefits that arise from economics of scale (Tether et al, 2005).

Lack of Access to Finance: Most studies (Ngodo, 1995; Kibera, 1997), point to finance as one of the key constraints to small scale automobile body builders’ enterprise growth. This is worsened by the absence of financial markets in the developing countries. Automobile body builders small scale enterprise owners cannot easily access finance to expand business and they are usually faced with problems of collateral, feasibility studies and the unexplained bank charges. This means that they cannot access finance to enable them to grow.

Low Level Technology: Because of their smallness, these enterprises end up using a cheap technology which is usually not top to the range. This results into high costs of production and not been competitiveness. For instance, small scale automobile enterprises cannot afford to use computers or even where they have one, to continuously upgrade their equipment (Kibera, 1997).

Other Social and Environmental Problems: Wallis, (2002) outlined the followings as regards to the hindrance, to the skill acquisition in small scale auto mechanic enterprises in Nigeria:

- Problems and costs of business registration, land acquisition and other peculiar problems.
- High rate of business failures due to state of economy.
- Some promoter's low educational back ground, lack of management and entrepreneurial skills.

Enabling Environment: While many countries have acknowledged that small scale automobile body builders' enterprises have an important role in their economics, not much effort has been done to facilitate their growth. They have to compete for finance, markets, personnel, and utilities like any other business unit (Mutazindwa, 1997). It is easier for a large enterprise to get land for industrial development and a license to operate the business than the small operator. Large enterprises get easy access to utilities than small scale enterprises. Consequently, there is no enabling environment to promote small scale automobile business operators (Kibera, 1997).

Low Level Patronage due to Lack of the Required Skills: (Cedetop, 2008) stated that lack of the above skills in an auto mechanic trade may lead to low patronage which will result to an individual suffering from lower wages and less satisfaction with their work.

2.6 Consequences of Lack of Skills Needed for Starting and Developing of an Automobile Body Building Workshop as a Small-Scale Enterprise

Skill shortage exist when employers have considerable difficulty filling vacancies for an occupation, or significant specialized skill needs within that occupation, at current levels of remuneration and conditions of employment and reasonably accessible location. Skill shortages (technical and employability skills) can coexist with relatively high levels of unemployment and sometimes shortages are restricted to experienced workers or those who have specialist skill (Bureau of Statistic Labour Force Survey, 2010).

The lack of the required skills can result from a number of factors including low levels of training, high levels of wastage, changes in technology, increasing demand for new skills within an occupation and location mismatch, where workers who have the skills are not in close proximity to the employers seeking those skills. New Automotive Innovation and Growth Team, (2009), stated that lack of the required skills wreak considerable damage; higher costs, compromised quality, lost orders, stifled innovation and increased workloads for employees.

Forth and Mason, (2004) reported that shortage of the required skills in automobile shops reduces annual productivity growth, causes unemployment, affect the ability of workers to capitalize on economic recovery, increase workload for other staff, growth of organization held back, delayed development of new products or services, causes business/ orders lost to competitors, difficulties in meeting quality standards, increased operating cost, difficulties in introducing new working practices and may lead to organization prompted to outsource work.

Unemployment: Lack of the required skills in automobile can represent a significant barrier to work and a major factor explaining unemployment in general is well as long-term or recurrent unemployment (Bennett of NK Guinness, 2009). Lack of these skills can thus be a barrier to

securing more stable employment or making progress in terms of income level, grade or levels of skills and responsibility at work (Frogner, 2002).

Lack of Employees' Confidence: Haskel and Martin (1996), stated that lack of skills is a serious barrier to many kinds of work, training or work-related activities. It can also undermine personal motivation and confidence and thus further limit the employability of individuals.

Low Income Earning: (Cedetop, (2008) stated that lack of skills may lead individuals to suffer from lower wages and are less satisfied with their job than if they were properly matched. Employers may suffer from lower productive and the economy may suffer from a loss of output.

Loss of Competitiveness: The lack of skills might lead to a loss of competitiveness as wage rates are bid up and productivity lowered within industries where skill problems exist. Productivity/ services may also suffer if firms are forced to place lower-skilled workers in skilled positions and/or if where a skills shortage exists, workers use their positions to alter their employment terms and conditions in a way that harms productivity/ services (European Commission, 2008).

Low Skill Equilibrium within the Economy: Finegold and Soskise, (1988) and Haskel & Holt, (2009) take the analysis the step further by describing a scenario whereby shortage can lead to low-skill equilibrium within the economy. They describe a situation where firms react to skills shortage by investing in technologies that complement the low-skilled element of the workforce, resulting in an economy characterized by low wages and a low demand for high-skilled labour.

As a consequence of the low demand for high wages/ high-skilled workers within the labour market and will no longer invest in their own human capital thus perpetuating the low-skill equilibrium. Hogarth and Wilson, (2001) go so far as to suggest that skill shortages in

automobile body builders are actually significant driver of the business cycle itself, placing a productivity constraint on the economy which in turn leads to a downturn in activity.

Poor Output: A study by the National institute of Economics and Social Research (Mason and Wilson, 2003) reported that relative to German plants, output per worker in automobile firms was over 60% lower, with the authors arguing that this productivity gap was a consequence of lower-skills levels.

Furthermore, Haskel and Martin (1996) suggested that skill shortages reduces annual productivity growth in the UK automobile body builders' companies by 0.4 percentage points over the period 1983-99. Forth and Mason (2004) found among UK automobile body builders' firms that a quantity shortfall in the number of engineers/ employers and employees led to lower output per worker.

Delayed Development of New Product or Services: Tether *et al* (2005), stated that lack of the skills in automobile technology leads to delayed in introducing new products as well as represented a barrier to implementing new work practices.

Difficulties in Meeting Quality Standards: Mc Guinness (2006), stated that this may arise in the sense that employees hired under such circumstances are less likely to possess the skills necessary to complete tasks with maximum efficiency. Mc Guinness and Bonner (2002), maintained that the shortage of the skills will lead to increase in under-education and under skilling as labour with appropriate education and skill is in short supply.

2.7 Summary of Related Literature

Small scale enterprises contribute a lot to the economy and well-being of the people. They provide employment, innovation and areas of marketing for goods and services which are offered for sales. Automobile body builders' workshops enterprises are one of such small-scale businesses, and the practitioners requires skills such as the skills to succeed in the business. The literature reviewed small scale automobile body builders as a person trained to repair vehicle bodies back to its their factory state after having been damaged and mechanical parts of automobiles, buses, and heavy trucks, and perform checks on cars to ensure proper performance.

The literature also reviewed employability skills as transferable, core work skill groups that represented essential functional and enabling knowledge, skills and attitudes required by the 21st century work place necessary for career success at all level of employment and for all level of education. The employability skills incorporate among others; personal attributes communication skills, teamwork skills, problem solving skills, learning skills and technology skills.

Literature was also reviewed on the technical skills in automobile technology as job related skills required to perform a particular job in different occupational areas. Technical skills were reviewed under auto body building and upholstery as well as parts merchandising. The literature reviewed hindrances towards the acquisition of the skills by the small-scale automobile body builders. The followings were discussed as some of the factors hindering the acquisition of the skills in small scale auto body builders' trades; lack of proper information, relative unattractiveness, lack of awareness of employer expectation, lack of clear career paths, lack of market opportunity, lack of access to finance, low level technology, enabling environment, educational level and low-level patronage due to lack of skills.

The literature also reviewed consequences of the lack of the skills by the small-scale automobile body builders. The followings were discussed as some of the consequences of the lack of the skills by the automobile body builders small scale shops to includes; reduces annual productivity growth, causes unemployment, delayed development of new products, low income earnings, loss of competitiveness, poor output, difficulties in meeting quality standards.

From the literature reviewed, however, it was discovered that little or no attention has been given to an assessment of the skills possessed by small scale automobile enterprises. The literature reviewed did not reveal any empirical studies ever carried-out to identify an assessment of the skills possessed by small scale automobile body builders in Minna, Niger State. This study is therefore carried out to establish and to progress in automobile body builder business, employability skills, technical skills, managerial skills, basic tools, equipment and facilities as well as finance are of great importance to the prospecting auto mechanic. Recommendations were given based on the findings from the study.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter describes basic procedure that was employed in the study, which includes; research design, population, area of study, instrument for data collection, validity of the instrument, administration of the instrument, method of data analysis and decision rules

3.1 Research Design

The research design that was used for this study is survey design. The survey design was considered suitable for the study, because large amount of information will be collected from a large number of people in a short period of time. Nworgu (1991) described survey research as that which a group of people or items is studied by collecting and analyzing data from only a few people or items considered to be representative of the entire group.

3.2 Area of the Study

The study was carried out using three senatorial zones namely: Minna from the central, keteregi from the west and Shiroro from the east.

3.3 Population of the Study

The targeted population for this study are 110 registered automobile body builders and apprentices operating small scale automobile body building workshop in Minna, Niger state. The population of 85 was divided into three(3), 35 respondents from Minna, 30 respondents from shiroro, and 20 respondents from Kateregi.

3.4 Sample and Sampling Techniques

A sample is the portion of the population selected for observation and analysis with the aim of making inference about the larger population. As result of many automobile body building workshops in minna Niger State, the researcher decided to obtain a sample size from the

population using a simple random sampling. Random sampling is a type of sampling where individuals are choosing randomly and entirely by chance.

3.5 Instrument for Data Collection

For the purpose of this study, a standard structured questionnaire was used for data collection. The questionnaire comprises of three part, I and II. Part I consists of the respondents' personal information such as business name, sex, age, location, number of trainees and years of experience in the business. Part II will be subdivided into three sections (A – C) i.e.

Section A: deals with the Skills needed for starting and developing of an automobile body building workshop as a small-scale enterprise in Minna, Niger state.

Section B: deals with the constraints hindering the startup and development of an automobile body building workshop as a small-scale enterprise in Minna, Niger state.

Section C: contains the strategies that could facilitate the skill needed for starting and developing of an automobile body building workshop as a small-scale enterprise in Minna, Niger state.

The questionnaire items for the research questions were (85) which were purposely meant to elicit the opinions of the respondents in the study area and to derive their consensus agreement in the questions asked. In doing this, the questions was ranked on a continuum on the basis of four point rating scale as stated below:

Highly Needed(HN)	-4
Moderately Needed (MN)	-3
Needed (N)	-2
Not Needed (NN)	-1

3.6 Validation of the Instrument

The instrument was face validated by three expert from the Department of Industrial and Technology Education, Federal University of Technology, Minna. The validator suggestion was used to draft the final draft of the instrument before the administration of the instrument. This is to ensure that the instrument would be capable of eliciting necessary information needed for the study.

3.7 Administration of the Instrument

The questionnaire was administered to the respondents by the researcher personally with the help of four other research assistants within the area selected for this research. Some of the items on the questionnaire were read out to the respondents who could not read effectively and were interpreted to them. All the questionnaire were retrieved back immediately.

3.8 Method of Data Analysis

The data analysis techniques to be employed in this study was basically in two folds: descriptive and inferential statistics. Descriptive statistics include mean and standard deviation. While, the inferential statistic involves the use of student t-test. In determining the opinion of the respondents, a four rating scale was employed as shown below.

Highly Needed(HN)	-4
Moderately Needed (MN)	-3
Needed (N)	-2
Not Needed (NN)	-1

The mean score was derived by dividing the sum responses by the total number of the respondents in the study area as shown below.

$$X = \frac{\sum f x}{F x}$$

Where

\sum = sum of normal value

X = mean

F = frequency

$$\text{Therefore, the mean value option} = \frac{4+3+2+1}{4}$$

$$= \frac{10}{4}$$

$$= 2.50$$

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

This chapter deals with presentation and analysis of data with respect to the research questions and hypothesis formulated for this study, the result of data analysis for the research questions were presented first, followed by those of the hypothesis tested for the study.

4.1 Research Question I:

The skills needed for starting and developing of an automobile body building workshop as a small scale enterprise in Minna, Niger state?

Table 4.1: Mean responses of panel beater and client on the skills needed for starting and developing of an automobile body building workshop as a small scale enterprise in Minna, Niger state?

$N_1 = 20, N_2 = 35, N_3 = 30$

S/NO	Items	\bar{X}_1	\bar{X}_2	\bar{X}_3	\bar{X}_4	REMARK
1.	Technical skills in body building process	3.45	3.03	3.92	3.24	Highly needed
2.	Skills to assemble body frames	3.40	3.33	3.79	3.37	Highly needed
3.	Skills to disassemble body frames.	3.55	3.49	3.96	3.21	Highly needed
4.	Competence in fixing car doors.	3.25	3.20	3.80	3.23	Highly needed
5.	Abilities to repair damaged body surface	3.00	3.08	3.79	3.04	Highly needed
6.	Rebranding body frames	3.05	3.07	2.90	3.06	Highly needed
7.	Customer and business relationship	3.60	3.08	3.96	3.34	Highly needed
8.	Managing tools and safety	2.85	3.95	3.85	3.90	Highly needed
9.	Ability to seek out new methods/advanced opportunities to body building	3.20	3.32	3.81	3.26	Highly needed
10.	Skills to operate and handle machine filar	3.75	3.87	2.91	3.31	Highly needed
11.	Use and apply various technologies in the workplace	3.95	3.15	3.86	3.05	Highly needed
12.	Ascertaining smoothness after body building	3.15	3.35	3.73	3.25	Highly needed
13.	Body filler mixing and application	3.45	3.02	3.01	3.23	Highly needed
14.	Operating machine gun spray painting process	3.80	3.71	3.06	3.76	Highly needed
15.	Knowledge in final finish with a mixture of hardener, Clair and thinner	3.25	3.88	3.00	3.07	Highly needed

Key:

N_1 = Number of Panel beaters

N_2 = Number of Clients

N_3 = Number of Apprentice

N_t = Total Number of Respondents

X_1 = Mean responses of Panel beaters

X_2 = Mean responses of Clients

X_3 = Mean responses of Apprentice

X_t - Average mean responses of Panel beaters, Clients and Apprentices.

The data presented in table shows that the respondents needed all the items with a mean score ranging from 3.04 to 3.90 which is above the cut-off of 2.50

4.2 Research Question II:

What are the constraints hindering the startup and development of an automobile body building workshop as a small scale enterprise in Minna, Niger state?

Table 4.2: Mean responses of the constraints hindering the startup and development of an automobile body building workshop as a small scale enterprise in Minna, Niger state

$N_1 = 20, N_2 = 35, N_3 = 30$

S/NO	Items	\bar{X}_1	\bar{X}_2	\bar{X}_3	\bar{X}_t	REMARK
16.	Poor setup of workshop	3.70	3.07	3.05	3.38	Needed
17.	Inadequate technical knowledge to practices.	3.45	3.60	3.00	3.21	Needed
18.	Negative attitude to practices	3.25	3.72	3.00	3.13	Needed
19.	Poor management skills in formulating a technology strategy to meet business goals	3.90	3.85	3.03	3.94	Needed
20.	Poor management strategies to meet business goals	3.05	3.51	3.80	3.93	Needed
21.	Inadequate technological skills from external sources when needed	3.60	3.14	3.72	3.01	Needed
22.	Shortage of new technologies when executing jobs	3.65	3.81	3.43	3.54	Needed
23.	Poor professional assessments and consultancy	3.70	3.15	3.02	3.16	Needed
24.	Incompetent assistant from research institute and government	3.80	3.84	3.73	3.77	Needed
25.	Low educational background of the panel beaters.	3.75	3.55	3.50	3.63	Needed
26.	Limitation in accessing loans	3.80	3.70	3.50	3.65	Needed
27.	Issues of co-operation and communication gap within the trade	3.85	3.75	3.48	3.67	Needed
28.	Lack of management risk	2.80	2.89	2.57	2.68	Needed
29.	Appropriate legislation that enable environment for panel beaters	2.10	3.85	2.23	2.57	Needed
30.	Inconsistency in training and re-training of indigenous firm personnel on new technologies.	2.75	2.82	2.45	2.60	Needed

Key:

N_1 = Number of Panel beaters

N_2 = Number of Clients

N_3 = Number of Apprentice

N_t = Total Number of Respondents

X_1 = Mean responses of Panel beaters

X_2 = Mean responses of Clients

X_3 = Mean responses of Apprentice

X_t - Average mean responses of Panel beaters, Clients and Apprentices.

The data presented in table shows that the respondents needed all the items with a mean score ranging from 2.57 to 3.94 which is above the cut-off of 2.50

4.3 Research Question III:

What are the strategies that could facilitate acquisition of the skills needed for starting and developing of an automobile body building workshop as a small scale enterprise in Minna.

Table 4. 3: Mean responses of the strategies that could facilitate acquisition of the skill needed for starting and developing of an automobile body building workshop as a small scale enterprise in Minna, Niger state

$N_1 = 20, N_2 = 35, N_3 = 30$

S/NO	Items	\bar{X}_1	\bar{X}_2	\bar{X}_3	\bar{X}_t	REMARK
31.	Establishing more automobile vocational training centers	3.10	3.12	3.85	3.11	Agreed
32.	Embracing new ideas to current practice	2.45	2.62	2.08	2.53	Agreed
33.	Provision of empowerment to automobile body builders	2.95	2.85	2.93	2.90	Agreed
34.	Effective utilization of available resources	2.45	2.64	2.78	2.53	Agreed
35.	Provide interest-free loans through National Directorate on Employment (NDE) to automobile body builders	2.55	2.53	2.81	2.54	Agreed
36.	Participating in excursion exercises	2.40	2.47	2.85	2.51	Agreed
37.	Up-skilling the knowledge of automobile body builders with seminars, workshop and conference for self-development	2.30	2.50	3.98	2.60	Agreed
38.	Prices charged by local automobile body builder	2.95	2.47	2.91	2.71	Agreed
39.	Creating and enabling environment for enhancing skilled manpower that will compete in other nation of the world.	2.60	2.78	2.96	2.69	Agreed
40.	Training and re-training of personnel to bridge the technological capability and performance gaps in	3.35	2.98	2.98	3.17	Agreed

41.	automobile body building Linkage with motor vehicle companies in enhance skills of automobile body builders	3.05	2.83	2.87	2.94	Agreed
42.	Linkage with Local automobile body builder Association	2.50	2.47	3.05	2.77	Agreed
43.	Provision of motivation to automobile body builders.	2.65	2.38	2.09	2.52	Agreed

Key:

N_1 = Number of Panel beaters

N_2 = Number of Clients

N_3 = Number of Apprentice

N_t = Total Number of Respondents

X_1 = Mean responses of Panel beaters

X_2 = Mean responses of Clients

X_3 = Mean responses of Apprentice

X_t - Average mean responses of Panel beaters, Clients and Apprentices.

The data presented in table shows that the respondents needed all the items with a mean score ranging from 2.51 to 3.17 which is above the cut-off of 2.50

4.4 Hypothesis I:

There was no significant differences between the mean response of automobile body builders and clients (vehicle owners) regarding the skills needed for starting and developing of an automobile body building workshop as a small-scale enterprise in Minna, Niger state.

Table 4. 4: t-test analysis of the responses of panel beater and client on the skills needed for starting and developing of an automobile body building workshop as a small scale enterprise in Minna, Niger state

$N_1 = 20$, $N_2 = 35$, $N_3 = 30$

S/NO	Items	SD ₁	SD ₂	SD ₃	t-test	REMARK
1.	Technical skills in body building process	0.37	0.76	0.33	2.01	S
2.	Skills to assemble body frames	0.61	0.60	0.33	0.40	NS
3.	Skills to disassemble body frames.	0.73	0.64	0.20	0.28	NS
4.	Competence in fixing and removing of car doors	0.65	1.12	0.08	-0.31	NS
5.	Abilities to repair damaged body surface	0.80	0.69	0.07	-0.09	NS
6.	Rebranding body frames	0.65	1.14	0.08	-1.70	NS
7.	Customer and business relationship	0.79	0.87	0.95	-0.45	NS
8.	Managing tools and safety	0.20	0.95	0.32	-0.49	NS
9.	Ability to seek out new methods/advanced opportunities to body building	0.75	0.91	0.87	-0.51	NS

10.	Skills to operate and handle machine filar	0.95	0.51	0.15	-1.26	NS
11.	Use and apply various technologies in the workplace	0.15	0.67	0.35	-1.13	NS
12.	Ascertaining smoothness before and after body building	0.45	0.75	3.02	0.90	NS
13.	Body filler mixing and application	0.80	2.00	2.71	0.28	NS
14.	Operating machine gun spray painting process	0.25	0.85	2.88	0.61	NS
15.	Knowledge in final finish with a mixture of hardener, Clair and thinner	0.20	0.62	0.78	0.29	NS

Key:

SD₁ = Standard Deviation of Panel beaters

SD₂ = Number of Clients

SD₃ = Number of Apprentice

X₁ = Mean responses of Panel beaters

X₂ = Mean responses of Clients

X₃ = Mean responses of Apprentice

t = t - test - Average mean responses of Panel beaters, Clients and Apprentices.

Table 4.4 Reveals that all the items were accepted indicating there was no significant difference between the respondents hence, null hypothesis tested is accepted. Except for 1 (1) which shows significant difference.

4.5 Hypothesis II:

There was no significant differences between the mean response of automobile body builders and clients (vehicle owners) regarding constraints hindering the startup and development of an automobile body building workshop as a small-scale enterprise in Minna, Niger state.

Table 4.5: t-test analysis of the responses of the constraints hindering the startup and development of an automobile body building workshop as a small scale enterprise in Minna, Niger State.

N₁ =20, N₂ = 35, N₃ = 30

S/NO	Items	SD ₁	SD ₂	SD ₃	t-test	REMARK
16.	Poor setup of workshop	0.88	0.82	0.87	-0.30	NS
17.	Inadequate technical knowledge to practices.	0.89	0.92	0.98	-0.83	NS
18.	Negative attitude to practices	0.74	0.83	0.91	2.21	S
19.	Poor management skills in formulating a technology strategy to meet business goals	0.81	0.68	0.98	-0.91	NS
20.	Poor management strategies to meet business goals	0.95	0.75	0.98	1.75	NS

21.	Inadequate technological skills from external sources when needed	0.75	0.60	0.87	1.23	NS
22.	Shortage of new technologies when executing jobs	0.93	0.83	1.05	0.15	NS
23.	Poor professional assessments and consultancy	1.01	1.04	1.09	0.98	NS
24.	Incompetent assistant from research institute and government	0.85	0.92	1.00	1.03	NS
25.	Low educational background of the panel beaters.	0.82	0.62	0.95	0.95	NS
26.	Limitation in accessing loans	1.21	0.60	1.07	1.46	NS
27.	Issues of co-operation and communication gap within the trade	0.91	0.60	0.94	0.34	NS
28.	Lack of management risk	1.95	0.83	1.02	2.34	S
29.	Appropriate legislation that enable environment for panel beaters	1.25	0.83	1.07	2.32	S
30.	Inconsistency in training and re-training of indigenous firm personnel on new technologies.	0.72	0.79	0.99	1.15	NS

Key:

SD₁ = Standard Deviation of Panel beaters

SD₂ = Number of Clients

SD₃ = Number of Apprentice

X₁ = Mean responses of Panel beaters

X₂ = Mean responses of Clients

X₃ = Mean responses of Apprentice

t = t - test - Average mean responses of Panel beaters, Clients and Apprentices.

Table 4.5 Reveals that all the items were accepted indicating there was no significant difference between the respondents hence, null hypothesis tested is accepted. Except for 3 (18, 28 and 29) which shows significant difference.

4.6 Hypothesis III:

There was no significant differences between the mean response of automobile body builders and clients (vehicle owners) regarding the strategies that could facilitate the skills needed for starting and developing of an automobile body building workshop as a small-scale enterprise in Minna, Niger state.

Table 4.6: t-test analysis of the responses of strategies that could facilitate acquisition of the skill needed for starting and developing of an automobile body building workshop as a small scale in Niger State.

N₁ =20, N₂ = 35, N₃ = 30

S/NO	Items	SD ₁	SD ₂	SD ₃	t-test	REMARK
31.	Establishing more automobile vocational training centers	0.47	1.95	1.00	3.91	S
32.	Embracing new ideas to current practice	0.60	1.10	0.88	2.73	S
33.	Provision of empowerment to automobile body builders	0.72	0.70	0.84	1.29	NS
34.	Effective utilization of available resources	0.51	0.80	0.95	1.49	NS
35.	Provide interest-free loans through National Directorate on Employment (NDE) to automobile body builders	1.14	0.72	1.04	-0.40	NS
36.	Participating in excursion exercises	0.81	0.73	0.89	1.01	NS
37.	Up-skilling the knowledge of automobile body builders with seminars, workshop and conference for self-development	0.85	0.83	0.80	-0.61	NS
38.	Prices charged by local automobile body builder	0.98	0.92	1.07	-1.23	NS
39.	Creating and enabling environment for enhancing skilled manpower that will compete in other nation of the world.	0.84	0.73	0.97	0.30	NS
40.	Training and re-training of personnel to bridge the technological capability and performance gaps in automobile body building	0.55	1.50	0.98	1.41	NS
41.	Linkage with motor vehicle companies in enhance skills of automobile body builders	0.70	0.50	0.98	1.49	NS
42.	Linkage with Local automobile body builder Association	0.75	1.48	1.0	1.74	NS
43.	Provision of motivation to automobile body builders.	0.89	0.57	0.89	1.01	NS

Key:

SD₁ = Standard Deviation of Panel beaters

SD₂ = Number of Clients

SD₃ = Number of Apprentice

X₁ = Mean responses of Panel beaters

X₂ = Mean responses of Clients

X₃ = Mean responses of Apprentice

t = t - test - Average mean responses of Panel beaters, Clients and Apprentices.

Table 4.6 Reveals that all the items were accepted indicating there was no significant difference between the respondents hence, null hypothesis tested is accepted. Except for 2 (1 and 2) which shows significant difference.

4.7 Findings of the Study

The following were the major findings of this study, they are highlighted based on the research questions.

The three categories of respondents agreed that all the skills needed for starting and developing of an automobile body building workshop. Findings related to the technical skills were:

- i. Technical skills in body building process
- ii. Skills to assemble body frames
- iii. Managing tools and safety
- iv. Skills to operate and handle machine filar
- v. Operating machine-gun spray-painting process

The constraints hindering the startup and development of an automobile body building workshop as a small scale enterprise in Minna, Niger sate.

- i. Poor setup of workshop
- ii. Inadequate technical knowledge to practices
- iii. Negative attitude to practices
- iv. Poor management skills in formulating a technology strategy to meet business goals
- v. Poor management strategies to meet business goals

The strategies that could facilitate the skills needed for starting and developing of an automobile body building workshop as a small scale enterprise in Minna, Niger state.

- i. Establishing more automobile vocational training center
- ii. Embracing new ideas to current practice
- iii. Provision of empowerment to automobile body builders
- iv. Effective utilization of available resources

- v. Provide interest-free loans through National Directorate of Employment (NDE) to automobile body builders

Findings based on the hypothesis tested in Table 4.4 revealed that if all the items were accepted indicating there is no significant difference between the respondents hence, null hypothesis tested is accepted. Except for item 1 which shows significant difference.

Findings based on the hypothesis tested in Table 4.5 revealed that all items were accepted indicating there is no significant difference between the respondents hence, null hypothesis tested is accepted. Except for item 4 and 19 which shows significant difference.

4.8 Discussion of Findings

The findings in Table 4.1 relating to research question one revealed that respondents needed all technical skills to establish a small scale body building workshop in Minna State, it was revealed that ability to Technical Skills in Body Building Process so as to be able to carry out body repairs on cars, competence in fixing and removing of car doors, Skills to assemble body frames, Managing tools and safety, Skills to operate and handle machine filar, Operating machine gun spray painting process. Are highly needed by the auto mechanics to perform effectively. According to Elobuike (2004), the level of body builders, are capable of handling the many phases of automobile body builders must have a number of talents (technical skills to cope successfully with the demand of the trade. Osinem, (2010) confirmed this to be simple because of the technological developments, commercial developements, and developemets in job structure. This means that the body builders has to respond to this changes to equip them with the newest technology and skills in technical areas to face the challenges of the ever changing world.

The findings in Table 4.2 relating to research question two showed that respondents aware of the constraints hindering the startup and development of an automobile body building workshop as a small scale in Niger State. It was revealed that constrains to the poor setup of workshop, Inadequate technical knowledge to practices, Negative attitude to practices, Poor management skills in formulating a

technology strategy to meet business goals and Poor management strategies to meet business goals. In a way that will allow it to achieve its objectives were all very necessary in the establishment of automobile body builders workshop. Supporting this view of Okuhu (2011), The success or failure of any business depends to a very large extent on the skills possessed by the craftman of the business. Unfortunately, people do not consider the place of this skills such as the managerial and technical skills in the setting of their business like the automobile body building workshop, hence, the need to study the techniques needed to establish an automobile workshop as a small scale enterprise for enhancing job creation, entrepreneurship development and wealth generation.

The findings in Table 4.3 relating to the research question three showed that respondents needed the strategies that could facilitate acquisition of the skill needed for starting and developing of an automobile body building workshop as a small scale enterprise in Minna, Niger State. It was reviewed that Establishing more automobile vocational training center, Embracing new ideas to current practice, Provision of empowerment to automobile body builders, Effective utilization of available resources and Provide interest-free loans through National Directorate of Employment (NDE) to automobile body builders. Non-governmental organizations should assist in the training of body builders with the adequate skills needed in establishing a small scale business enterprise and undergoing excursion exercise. This is in line with Osuala (2004), 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 technical skills for the operation of automobile workshop.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of the Study

The rate of automobile crashes in recent times in the country has led to the need for the establishment of small-scale automobile body building workshop in Niger State in the country and most especially as a result of the recent changes in technological sophistication of automobiles. The purpose of this study was to investigate the survey of the skills needed to start and develop an automobile body building workshop so as to evolve a system which will perform optimally.

The related literatures were reviewed in the study under the following sub-headings; the automobile industry, Automobile body building/panel beating, automobile body building workshop, skills needed to setup an automobile workshop as a small scale enterprise, constraints hindering the skills needed for starting and developing of an automobile body building workshop as a small scale enterprise, consequences of lack of skills needed for starting and developing of an automobile body building workshop as a small scale enterprise, recommendation for small scale automobile body building workshop.

The instrument used for data was questionnaire which contained 43 items. The total of 85 respondents comprising of 20 respondents from Minna, 35 respondents from keteregi, and 30 respondents from Shiroro, were used for the research. The data was analysed using mean, standard deviation and t-test as statistical tool for the study.

5.2 Implications of the Study

The result obtained from the findings of the study has provided a high implication of the skills for starting and developing an automobile body building workshop as a small scale enterprise in Niger State. The study provides necessary information on the technical skills needed in automobile body building workshop. The findings also exposed the constrains hindering the startup and development of an automobile body building workshop as a small scale enterprise in Minna, Niger state. The strategies that could facilitate acquisition of the skill needed for starting and developing of an automobile body building workshop as a small scale enterprise in Minna, Niger State. It would instill satisfaction in Vehicle owners as it would be able to get their vehicles body rebuild and repaired in case of a fault. Ultimately in providing a basis for confidence in terms of quality repair and maintenance services. Vehicles body building and repair which needs efficient technical skills in its operation in order to achieve optimal performance. Inadequacy in the technical skills could result to catastrophic damage to the vehicle body and shape entirely. It helps the automobile industry develop a satisfactory confidence in the technical skills, possessed by automobile body building workshop since having this establishment of an automobile workshop will bring about better vehicle maintenance and will therefore increase the worth of manufactured vehicle to reduce customer complaint about vehicle body been unpleasant and deformed.

The findings give individuals with interest in establishing an auto-body building workshop an insight in the importance of technical skills and strategies needed in relation to technological advancements. It will also provide more researchable areas to make recommendations based on findings in this study. It will also assist vocational training of individuals and also students on industrial work experience scheme (SIWES) with the adequate technical skills needed in the

automobile trade.

5.3 Contribution to Knowledge

This research work results has so much value added to the technical skills and strategies used in carrying out operations in automobile body building workshop and other related fields in technical skills industries in Minna, Niger State. By improving the techniques of automobile body builders in carrying out their activities effectively and efficiently. Also clients also gained from this work by understanding the different procedure to which a finish is achieved towards the satisfaction of clients and this also lead to improvement of long lasting business relationship. Another contribution of this work is the changed in perception of people in related to gender biasness in the automobile industries in the community and country at large.

5.4 Conclusion

Based on the data analysis and major findings, the following conclusions were drawn; the automobile body builders possess some level of technical skills in performing their daily functions. The body builders agreed that strategies are important for small-scale automobile establishment but do not efficiently possess it neither do they perform the function.

5.5 Recommendation

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

- Organization of workshops, seminars, capacity building for the automobile body builders to teach them about employability skills and innovations in automobile technology.
- Government, NGOs, Banks and individuals should come to the aid of the automobile mechanics by granting them soft loans or grants to finance their workshop and establish new ones.

- The land tenure systems should be made flexible enough to enable the automobile body builders to secure land for establishment of a facility which is the automobile workshop.
- National Automobile Technicians Association (NATA) should encourage the use of new technological tool for the repairs of body faults.

5.6 Suggestion for Further Research

Further research study can be earned out in the following areas based on findings of the research.

- Assessing the situation of maintenance practice on automobile tools and equipment among automobile body building mechanics.
- Periodically assessing the skill among workshop attendants in the maintenance of automobile body building tools and equipment in the workshop industries.
- Periodically assessing the extent of fund generated for the affective maintenance of automobile body building tools and machines in the workshop industries.

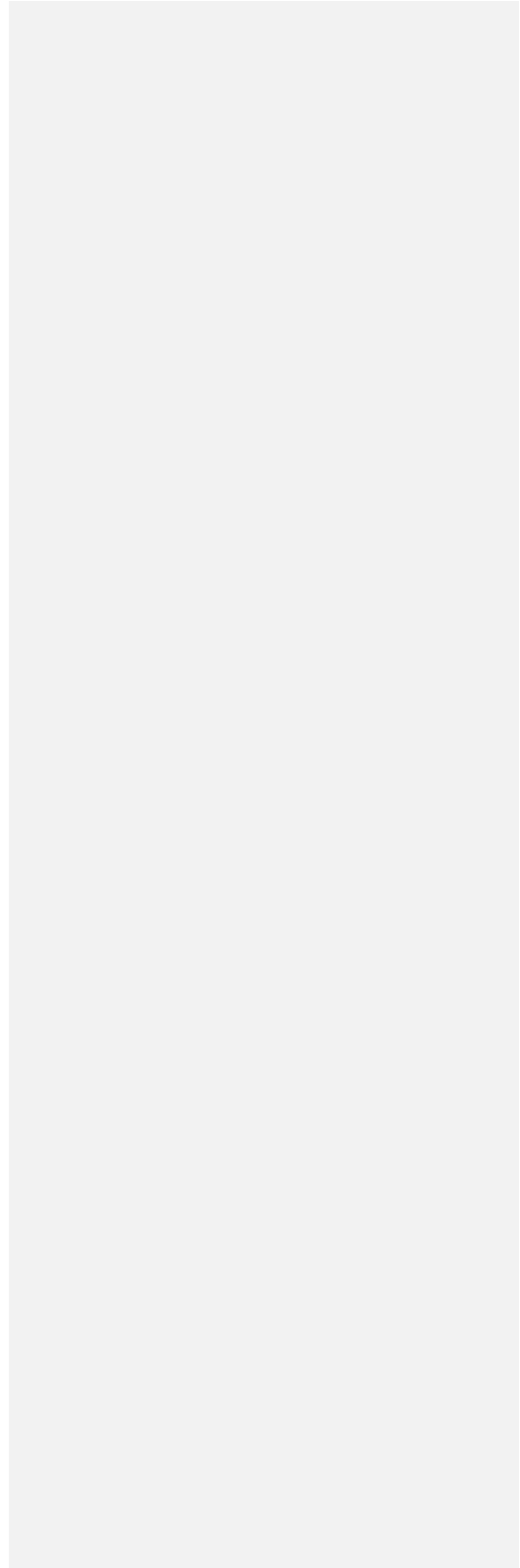
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APPENDICES A



APPENDIES B.
FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
DEPARTMENT OF INDUSTRIAL AND TECHNOLOGY EDUCATION
QUESTIONNAIRE ON SURVEY OF THE SKILL NEEDED FOR STARTING AND
DEVELOPING OF AN AUTOMOBILE BODY BUILDING WORKSHOP AS A SMALL
SCALE ENTERPRISE IN MINNA, NIGER STATE

SECTION A

Please tick () in the boxes as appropriate in response to the following question.

1. Name of organization (optional); _____

2. Number of years of incorporation;

(a) 0 – 5 years (b) 6 -10 years (c) 11 – 15 years (d) 16 – 20 years (e) over 20 years

3. Number of Employees;

(a) 1 – 10 employees (b) 10 – 20 employees (c) 20 – 30 employees (d) 30 – 40 employees

(e) Over 40 employees

4. Average years of experience of respondents;

(a) 0 – 5 years (b) 6 – 10 years (c) 11 – 15 years (d) 16 -20 years (e) over 20 years

Note:

Highly Needed (HN) - 4

Moderately Needed (MN) - 3

Needed (N) - 2

Not Needed (NN) - 1

5. Respondents

(a) Panel beater (b) Client (c) Apprentice.

The skills needed for starting and developing of an automobile body building workshop as a small scale enterprise in Minna, Niger state.

S/N	ITEMS	HN	MN	N	NN
1.	Technical skills in body building process				
2.	Skills to assemble body frames				
3.	Skills to disassemble body frames				
4.	Competence in fixing of car doors				
5.	Abilities to repair damaged body surface				
6.	Rebranding body frames				
7.	Customer and business relationship				
8.	Managing tools and safety				
9.	Ability to seek out new methods/advanced opportunities to body building				
10.	Skills to operate and handle machine filar				
11.	Use and apply various technologies in the workplace				
12.	Ascertaining smoothness after body finishing				
13.	Body filler mixing and application				
14.	Operating machine-gun spray painting process				
15.	Knowledge in final finish with a mixture of hardener, Clair and thinner				

The constraints hindering the startup and development of an automobile body building workshop as a small scale enterprise in Minna, Niger state

S/N	ITEMS	HN	MN	N	NN
16	Poor setup of workshop				
17	Inadequate technical knowledge to practices.				
18	Negative attitude to practices.				
19	Poor management skills in formulating a technology strategy to meet business goals				
20	Poor management strategies to meet business goals				
21	Inadequate technological skills from external sources when needed				
22	Shortage of new technologies when executing jobs				
23	Poor professional assessments and consultancy				
24	Incompetent assistant from research institute and government				
25	Low educational background of the panel beaters.				
26	Limitation in accessing loans				

27	Issues of co-operation and communication gap within the trade				
28	Lack of management risk				
29	Appropriate legislation that enable environment for panel beaters				
30	Inconsistency in training and re-training of indigenous firm personnel on new technologies.				

The strategies that could facilitate acquisition of the skill needed for starting and developing of an automobile body building workshop as a small scale enterprise in Minna, Niger state

S/N	Items	HN	MN	N	NN
31	Establishing more automobile vocational training centers				
32	Embracing new ideas to current practice				
33	Provision of empowerment and motivation to automobile body builders				
34	Effective utilization of available resources				
35	Provide interest-free loans through National Directorate on Employment (NDE) to automobile body builders				
36	Participating in excursion exercises				
37	Up-skilling the knowledge of automobile body builders with seminars, workshop and conference for self-development				
38	Prices charged by local automobile bodybuilder.				
39	Creating and enabling environment for enhancing skilled manpower that will compete in other nation of the world.				
40	Training and re-training of personnel to bridge the technological capability and performance gaps in automobile body building				
41	Linkage with motor vehicle companies in enhance skills of automobile body builders				
42	Linkage with Local automobile body builder Association				
43	Provision of motivation to automobile body builders				

APPENDICES C

FORMULA

MEAN (\bar{X}) formula

$$\text{Mean } (\bar{X}) = \frac{\sum fx}{\sum f}$$

\bar{X} = Mean response of each group of respondents

\sum = The sum of

X = The score on the rating scale

F = The frequency of each point on the rating scale

Standard Deviation (SD) Formula

$$SD = \sqrt{\frac{\sum f(x - \bar{x})^2}{\sum f}}$$

\bar{X} = Mean response of each group of respondents

\sum = The sum of

X = The score on the rating scale

F = The frequency of each point on the rating scale

t – test Formula

$$t - \text{test} = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_1^2}{N_1} + \frac{S_2^2}{N_2}}}$$

\bar{X}_1 = Mean response for First group of respondents

\bar{X}_2 = Mean response for Second group of respondents

S_1 = Variance of First group of respondents

S_2 = Variance of Second group of respondents

N_1 = Number of First group of respondents

N_2 = Number of Second group of respondents.