SURVEY OF THE INFORMATION AND COMMUNICATION TECHNOLOGY-BASED

SKILLS NEEDED TO ENHANCE EMPLOYABILITY OF AUTOMOBILE

TECHNOLOGY EDUCATION GRADUATES IN NIGER STATE.

BY

TSADO JOSEPH YEBO

2016/1/64594TI

DEPARTMENT OF INDUSTRIAL AND TECHNOLOGY EDUCATION
SCHOOL OF SCIENCE AND TECHNOLOGY EDUCATION
FEDERAL UNIVERSITY OF TECHNOLOGY MINNA

APRIL, 2023

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A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF INDUSTRIAL
AND TECHNOLOGY EDUCATION, FEDERAL UNIVERSITY OF TECHNOLOGY
MINNA, NIGER STATE

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APRIL, 2023

DECLARATION

I, Tsado Joseph Yebo with matriculation number 2016/1/64594TI an undergraduate student of the department of Industrial and Technology Education certify that the work embodied in this project is original and has not been submitted in any part or full for any other diploma or degree of this or any other University.

Tsado Joseph Yebo

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CERTIFICATION

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

Mr. ABUTU FRANCIS

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Head of Department   Signature/Date

External Examiner   Signature/Date

DEDICATION

This project is dedicated to God Almighty, my friends and my family and all who contributed to the success of the project.

ACKNOWLEDGEMENTS

My sincere gratitude to God Almighty, the most merciful and the gracious for His strength and grace throughout mu undergraduate programme. My profound gratitude to my supervisor, the head of department of industrial and technology education Dr. T.M Saba for his kind gesture, fatherly care, health criticism, profound advice and guidance towards the success of my project.

My gratitude also goes to the research project coordinator, Dr. A.M Hassan.

To my great lecturers, fathers, motivators of the department of industrial and technology education, Prof. B.N Atsumbe, Prof. R. Okwori, Prof. E. Raymond, Prof. A.M Idris, Dr. I.Y Umar, Dr. G.A Uman, Dr. A.M Hassan, Dr. Abdulkadir Mohammed, Dr. S.A Owoduuni, Dr. C.O Igwe, Mallam S.A Musa, Dr. Dauda Ibrahim, Dr. A.B Kagara, Dr. I.K Kalat, Mr. Abutu Francis and Mrs. F.O Nwanko.

To my parents Mr. and Mrs Tsado who have provided every form of moral, financial and spiritual support one could ever need in life. I also recognized my brothers and friends, David Adelelke, Abee Isaac, Adebayo Simeon, Ajibade Abass, Obed Kolo, Alaka Nurudeen, and Prince Etumnu Uchechukwu.

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ABSTRACT

This research was design for the survey of the information and communication technology-based skills needed to enhance employability of automobile technology education graduates in Niger State. The automobile technology education graduates must be equipped with a wide range of technical and soft skills, including programming, data analysis, communication, and collaboration. A total population sample of 115 respondents comprising of 75 computer science lecturers and 40 automobile technology lecturers. Descriptive and inferential statistical tools were used to analyze data from field work. Mean Score and standard deviation. Analysis of the study was done with the aid of the Statistical Package for Social Sciences (SPSS). The results of the study indicate that the active population in computer science lectures and automobile technology lecturers. In regards to the ICT-based skills do Automobile Technology Education Graduates in Niger State need to enhance their employability, all the respondents were strongly agreed, however they are Automotive diagnostic technology is used in the to detect and diagnose any technical problems in vehicles, ability to interpret and analyze data from diagnostic tools. Additionally, scrap yards were observed to be a major source of automobile technology education graduate in Niger State.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

The automotive industry is one of the most innovative, technologically driven industries in the world. This industry has been transformed by the introduction of Information and Communication Technologies (ICTs) into various aspects of its business operations according to a report from World Economic Forum, (2018). The use of ICTs has enabled the automotive industry to remain competitive in a rapidly changing global environment. ICTs have enabled the automotive industry to streamline its processes, increase efficiency, and reduce costs. The use of ICTs has also enabled the industry to reduce its reliance on manual labor. For example, ICTs have enabled the industry to automate processes such as assembly, order management, and supply chain management. This automation has allowed the industry to reduce its labor costs, increase productivity, and improve customer service. Ministry of Economy, Trade and Industry of Japan, (2019).

ICTs have also enabled the automotive industry to improve its competitiveness by providing access to real-time data and analytics. This access has enabled the industry to make informed decisions quickly and accurately. Additionally, ICTs have enabled the industry to increase its global presence by providing access to remote markets and customers. This increased presence has enabled the industry to respond to customer demand faster and more efficiently. (Frost and Sullivan, 2019).

ICT enables the collection of customer feedback, which is then used to develop products and services that meet customer expectations. Through the use of ICT, companies can rapidly develop and deploy new services and products, which can be tailored to meet customer needs. For example, the use of ICT in the automotive industry can help companies identify customer preferences and

develop car models that are more attractive and have features that meet the unique needs of their customers. (Zampini and Tappert, 2018).

ICT can also help the automotive industry create more data-driven products and services. By using the latest technological advances, companies can harness the power of data to create more accurate models of customer behavior and preferences. This can help companies create more personalized products, such as custom car features or personalized driving experiences. (Kollmann and Kottke, 2019). Furthermore, ICT can help automotive companies create better marketing and customer service programs. By using ICT, companies can create more efficient customer service programs, which can help them better understand their customers and provide them with the best services possible. (Köhler and Peukert, 2018).

Another area of rapid growth in the automotive industry is advanced driver assistance systems (ADAS). ADAS includes features such as lane assist, adaptive cruise control, and autonomous emergency braking. According to a report from Frost and Sullivan (2019), the global ADAS market is estimated to reach $61 billion by 2025. Major manufacturers such as BMW, Volkswagen, and Ford are investing heavily in ADAS, and the market provides numerous opportunities for graduates to work in software engineering and testing.

The electric and hybrid powertrain is another growing area in the automotive industry. According to a report from Bloomberg, the global market for electric vehicles is estimated to reach $2 trillion by 2030. Major players in the electric vehicle market include Tesla, Volkswagen, and General Motors. For graduates, the electric vehicle market provides numerous opportunities to work in battery design and powertrain engineering.

The ICT skills necessary for success in the automotive industry, including areas such as automotive engineering, education, automotive maintenance and repair, and driving for automobile

technology graduates in Niger State, are becoming increasingly important as technology continues to advance. Automotive engineers and technicians must possess a mixture of technical, analytical and interpersonal skills to be successful.

With the emergence of new technologies in the automobile technology sector, the need for ICT-based skills among automobile technology education graduates in Niger State has become increasingly important. As the automobile industry advances further into the digital age, ICT-based skills have become essential for graduates to stay current with the latest trends, stay competitive, and remain competent in the job market. This study will assess the current ICT-based skills of automobile technology education graduates in Niger State and review the current technologies available and the skills required to use them effectively.

The current technologies available in the automobile technology sector include the latest software applications, diagnostic equipment, and advanced electronics. Automobile technology education graduates should be knowledgeable and competent in the use of these technologies, as well as the associated ICT skills required. This includes being able to use the latest automotive software applications and diagnostics, understand advanced electronics, and troubleshoot and repair complex systems.

In addition to the technologies, graduates must also understand the core principles of ICT in order to be successful. This includes understanding networked systems, data security, operating systems, the internet, computer programming, and other related topics. Moreover, graduates must have comprehensive knowledge of the latest industry standards, such as those set by the International Standards Organization (ISO) and the American Society of Automotive Engineers (ASE).

To use these technologies effectively, graduates must also possess a strong set of soft skills. Automobile technology education graduates should be able to think critically, work in teams,

communicate effectively, and troubleshoot problems. They should also be able to work independently, manage their time well, and demonstrate a commitment to life-long learning.

As the automobile technology sector continues to evolve, the ICT-based skills of the graduates of automobile technology education programs need to keep pace. Unfortunately, many graduates lack the requisite background and experience to effectively use the latest technologies and software in the automotive industry. This can create a gap between the skills that graduates possess and the skills needed for successful entry into the job market.

To close this gap, training and education providers must ensure that their programs are relevant to current industry trends and best practices. This includes the use of the latest software, hardware, and cloud technologies. Professional organizations and institutions must also assess the current training and education programs available to automobile technology education graduates and identify any gaps that need to be bridged.

One such gap is the lack of practical experience in the development of software systems and applications that are used in the automobile industry. Graduates must be given the opportunity to gain practical experience in developing software, which can be done through internships, projects, and courses. Moreover, courses should focus on the development of specific software and systems, such as computer-aided design (CAD) and Geographic Information Systems (GIS), and include the development of algorithms and programs needed for the automotive industry.

Another gap is the lack of knowledge of the latest automotive technologies. To bridge this gap, graduates must be exposed to the latest hardware, software, and cloud technologies used in the automobile industry. This can be done by providing courses and workshops on the latest technologies, such as the Internet of Things (IoT), autonomous vehicles, and predictive analytics.

Furthermore, technology companies and other organizations should provide workshops and seminars on the latest technologies and their potential applications in the automotive industry. Reasons for skill gaps include; Inadequate Training, Lack of Hands-On Experience, Changing Nature of Car Technology.

1.2 Statement of the research problem

The statement of the problem for the survey of the Information and Communication Technology-based skills needed to enhance employability of Automobile Technology Education graduates in Niger State is to identify the gaps between the current ICT-skills possessed by Automobile Technology Education graduates and the ICT-skills needed by employers in the Automobile Technology industry.

This survey seeks to determine the knowledge, skills, and abilities required for graduates to be successfully employed in the Automobile Technology industry in Niger State. This survey will focus on how ICT-based skills can aid graduates in gaining employment in the Automobile Technology industry. By assessing the ICT-skills of Automobile Technology Education graduates and the ICT-skills needed by employers in the Automobile Technology industry, this survey will help identify the deficiencies in the ICT-skills possessed by Automobile Technology Education graduates and suggest ways to improve their employability.

This survey will help in understanding the current employability trends in the Automobile Technology industry in Niger State and suggest ways to enhance the employability of Automobile Technology Education graduates. The implications of this survey on the employability of Automobile Technology Education graduates will be critically analysed and recommendations will be provided.

1.3 Purpose of the study

The purpose of this study is to conduct a survey of the information and communication technology-based skills needed to enhance the employability of Automobile Technology Education graduates in Niger State. Through this survey, we aim to achieve the following four main objectives:

1. To identify the ICT-based skills that Automobile Technology Education Graduates in Niger State need to enhance their employability.

2. To assess the extent to which Automobile Technology Education Graduates possess the ICT-based skills needed to become employable.

3. To develop strategies to enhance the employability of Automobile Technology Education Graduates in Niger State through the acquisition of ICT-based skills.

1.4 Significance of the study

The following significance of this study are as follows:

1. Understanding the skills gap: This study will help to understand the skills gap between the current pool of automobile technology education graduates and the skills required by employers. This will help to inform the development of new educational programs and training initiatives to help fill this gap.

2. Identifying current trends: Through the survey, this study will help to identify current trends in the field of automobile technology, such as new technologies, tools and methods being used in the industry. This will help to inform the development of current and future curricula in the field.

3. Enhancing international competitiveness: By understanding the skills required by employers, this study will help to enhance the competitiveness of graduates in the

international marketplace. This can lead to increased opportunities for graduates in the automobile technology field.

4. Updating curriculum: This study will provide essential data to update and revise automobile technology curriculum to meet the current demands of the industry and employers.

5. Improving employability: The data collected will help to identify the skills which graduates need to have in order to be employed in the automobile technology field. This will ensure that graduates are well-prepared to enter the job market.

1.5 Scope of the study

This survey will explore the current state of the graduates' information and communication technology (ICT) skills and identify any skills gaps they may have. Additionally, the survey will examine the impact of ICT-based skills on the graduates' employability, their job search process, and their utilization of digital tools in their job search.

In order to obtain an accurate picture of the state of ICT-based skills among the automobile technology education graduates, this survey will include a questionnaire administered to a representative sample of the graduates. The survey will include questions regarding the graduates' current ICT skills, their experience with digital job search tools, and their utilization of ICT during their job search.

This survey will be conducted in an effort to identify any gaps in ICT-based skills among the graduates that may be hindering their employability. The data collected from the survey will be used to inform the development of programs and initiatives to help graduates develop the necessary ICT skills to increase their employability.

1.6 Research questions

1. What ICT-based skills do Automobile Technology Education Graduates in Niger State need to enhance their employability?

2. To what extent do Automobile Technology Education graduates possess the ICT-based skills needed to become employable?

3. What are the strategies needed to enhance the employability of Automobile Technology Education Graduates in the job market in Niger State through the acquisition of ICT-based skills?

1.7 Hypotheses

The following null hypothesis were formulated and to be tested at 0.5 level of significance.

H01: There is a statistical relationship in the mean response between Computer science lecturers and Automobile technology lecturers on the ICT skills required by Automobile technology students to enhance their employability in the labor market.

H02: There is a statistical relationship in the mean response between Computer science lecturers and Automobile technology lecturers on the extent to which Automobile Technology Education Graduates possess the ICT-based skills needed to become employable.

H03: There is a statistical relationship in the mean response between Computer science lecturers and Automobile technology lecturers on the strategies needed to enhance the employability of Automobile Technology Education Graduates in Niger State.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1   Conceptual Framework of the study

2.1.1 The history and the inception of ICT in automotive industry.

The automotive industry has been undergoing a major transformation in recent years, largely driven by the introduction of Information and Communication Technologies (ICT). ICT has had a profound impact on the auto industry, from the introduction of autonomous vehicles to the development of more efficient parts and systems.

The use of ICT in automotive began in the late 1980s with the introduction of the first electronic fuel injection systems. This allowed for improved engine performance, increased fuel efficiency, and reduced emissions. By the mid-1990s, ICT had been implemented into most vehicle systems, including brakes, steering, and suspension. Around this time, the first automotive telematics systems were developed, allowing for remote diagnostics, navigation, and infotainment.

The introduction of ICT into the automotive industry accelerated in the 2000s due to the emergence of connected vehicles, powered by wireless networks and cloud technologies. This allowed for the development of a wide range of connected services, such as real-time traffic congestion information, remote security systems, and predictive maintenance.

Today, ICT is an integral part of the automotive industry, with the development of autonomous driving, advanced driver assistance systems, and predictive analytics. The future of automotive technology is expected to be heavily driven by ICT, with further advances such as artificial intelligence, advanced driver monitoring, and the Internet of Things.

2.1.2 The importance of ICT in the automotive industry.

The automotive industry has seen tremendous growth with the rise of Information and Communication Technology (ICT). ICT has allowed for better communication between automotive manufacturers, retailers, and consumers, enabling faster and more efficient production and providing better customer service. Here are ways ICT has been especially helpful in the automotive industry:

Automated Manufacturing: ICT has enabled the implementation of automated manufacturing in the automotive industry, allowing for faster and more efficient production. This has allowed for shorter production times and higher quality control. (Esmaeili, et al., 2017).

The automotive industry has seen a remarkable shift in how it produces its products since the introduction of Information and Communication Technology (ICT). With ICT, the automotive industry has made the shift from manual production to automated manufacturing, allowing for faster and more efficient production.

Automated manufacturing has been enabled through the development of computer-aided manufacturing (CAM), computer numerical control (CNC) programming, and robotics. For example, CAM software can run complex operations such as drilling, milling, cutting, and welding with precision. CNC programming is used to control the operation of machinery tools, while robotics is used to automate the production processes. This automation has greatly improved the efficiency of the production process and has drastically reduced the time and cost of production.

Further advancements in ICT have enabled the automotive industry to quickly and efficiently produce a wide range of vehicle components. Automated manufacturing has allowed for the mass production of components with precision and accuracy. This has also reduced costs significantly, as the production process is now automated and requires less manual labor.

In addition, ICT has enabled the automotive industry to reduce the amount of waste produced during the production process, as the automated process is more accurate and efficient. Furthermore, ICT has facilitated the development of vehicles with new features, such as self-driving vehicles and electric vehicles.

Automation Software: Automation software allows for the integration of different systems, such as manufacturing, logistics, and accounting, into one cohesive system. This helps to streamline processes, while also providing better customer service and lower costs. (Cai and Li, 2017).

The integration of different systems, such as manufacturing, logistics, and accounting, into one cohesive system is made possible by automation software. Automation software is a powerful tool for streamlining processes, improving accuracy, and reducing costs. In addition, it can provide significant advantages in terms of visibility, scalability, and compliance.

First, automation software can streamline processes. Automation reduces inefficiencies associated with manual processes, such as manual data entry, by automating processes such as workflow and invoicing. This helps to improve accuracy and reduce costs. For example, an automated system can reduce the time needed to process an invoice by up to 60%, and can reduce costs associated with paper-based invoicing by up to 80%. (Davenport, T., and Harris, J, 2017).

Automation software can improve visibility into all aspects of an organization, allowing for greater data-driven decisions. Automation software can integrate all systems into one, providing real-time insights into data and trends. For example, an integrated system can provide instant, real-time visibility into inventory levels, allowing a company to better anticipate customer demand. (Gartner, 2018).

Automation software can provide scalability. Automation software can be quickly and easily scaled to meet the needs of a growing business. For example, a company may need to manage a large number of customer orders each day. An automated system can be scaled to manage this increased demand, ensuring customer orders are fulfilled quickly and accurately. (Prater, K., and Peppers, D, 2018).

Automation software can help ensure compliance with regulations. Automation software can automate processes such as data security and customer privacy, ensuring customer data is properly secured and in compliance with regulations. For example, an automated system may be used to track customer data and ensure compliance with GDPR or HIPAA regulations. (EU GDPR, 2018).

Automation software can reduce labour costs. Automation software can automate processes that are traditionally handled by staff, such as customer service or data entry. This can reduce the number of resources needed to perform a task, leading to reduced labours costs. (Boudreau, J. W., and Ramstad, P. M, 2011).

Automation software can improve customer service. Automation software can streamline processes such as order processing, customer inquiries, and customer feedback. This can allow a company to provide faster and more accurate service to customers, leading to improved customer satisfaction. (Reichheld, F. F., and Sasser, W. E, 1990).

Automation software can improve accuracy and reduce costs across the board. Automation software can streamline processes, resulting in improved accuracy and reduced costs associated with manual processes. This can have significant impacts on a company's bottom line. (McAfee, A, 2006).

Vehicle Tracking: ICT has made it easier to track vehicles throughout the supply chain, allowing for improved customer service and better inventory management. (Hussain & Wu, 2018).

In the automotive supply chain industry, it is important to understand the impact of ICT on tracking vehicles throughout the supply chain. By leveraging advanced technologies such as tracking devices, enhanced GPS systems, and cloud technology, businesses can more effectively track vehicles as they move throughout the supply chain. This enables improved customer service and better inventory management.

Recent research from Harvard Business Review has found that "GPS-enabled devices have proven to be critical components" in the success of modern supply chains, allowing for "real-time visibility into where their products are located and how they are performing" (Khan, 2019). This improved clarity into the supply chain allows businesses to more quickly resolve customer issues and identify inventory discrepancies.

In addition, the U.S. Department of Transportation highlights the importance of ICT in supply chain visibility, noting that it "has significantly improved supply chain visibility and logistics operations" (U.S. Department of Transportation, 2018). By providing real-time updates of the location of vehicles, businesses can better optimize their supply chain operations, resulting in increased efficiency and improved customer satisfaction.

Moreover, ICT allows businesses to better manage their inventory. With the help of ICT, businesses can "monitor inventory levels, track the progress of each delivery, and respond quickly to customer requests" (Tay, 2020). This allows businesses to better forecast demand and adjust their inventory accordingly, avoiding costly overstocking or stockouts.

ICT has improved communication throughout the supply chain. By integrating ICT into their operations, businesses can more quickly share information about vehicle location, delivery status,

and inventory levels (Srivastava et al., 2019). This improved communication helps ensure that customer service is optimized and inventory issues can be addressed quickly and efficiently.

Automated Logistics: ICT has enabled automated logistics in the automotive industry, allowing for faster and more efficient delivery of parts and vehicles. This, in turn, has helped to reduce costs and improve customer satisfaction. (Raj and Bhushan, 2016).

The automotive industry has experienced a significant technological revolution in recent years, and the introduction of ICT (Information and Communication Technologies) has been a major enabler of this transformation. Automated logistics – the use of automated systems to manage and optimize the delivery of parts and vehicles – has become a key feature of the industry, allowing for faster and more efficient delivery.

The use of ICT-enabled automation in logistics has revolutionized the automotive industry, making it possible to achieve higher levels of efficiency and productivity. By using ICT-based systems, companies can track and manage their inventory in real-time, reducing the need for manual labor and improving accuracy. Additionally, automated systems can provide detailed information on the status of orders, allowing for better forecasting and more timely deliveries. (Sjoquist, 2017).

Furthermore, ICT-enabled automation in logistics can also help to reduce costs associated with shipping, storage, and parts procurement. Automation can streamline the entire ordering process, making it easier to manage, and helping to reduce the number of errors. This can lead to savings in labour costs, as well as in material costs, and can free up resources for other areas of the business. (Tan, 2018).

ICT-enabled automation in logistics can also help to improve customer service. Automated systems can provide customers with real-time updates on their orders, allowing for more efficient communication and better customer satisfaction. Additionally, automated systems can also provide

useful information about the availability and location of parts, allowing for faster resolution of customer inquiries. (Bergsma, 2016).

Customer Relationship Management: ICT has enabled the implementation of customer relationship management (CRM) systems, which have allowed automotive companies to better understand their customers' needs and preferences. This has enabled companies to provide better customer service and build stronger customer relationships. (Kumar and Mohanty, 2018).

As an increasingly important tool for automotive companies, customer relationship management (CRM) systems are allowing companies to gain a better understanding of their customers' needs and preferences. With advancements in information and communication technology (ICT), the implementation of CRM systems has been made possible for automotive companies, providing them with a range of cost-effective and efficient customer service options. (Brannen, M.Y., and Lamb, C.W. 2013).

CRM systems have enabled automotive companies to better understand customer needs and preferences through data analysis. The analysis of customer data allows companies to gain a better understanding of what their customers need and want, which can then be used to customize services and products accordingly. This can be beneficial for both the customer and the automotive company. For instance, by using data analysis, automotive companies can identify customers who may require additional services, such as servicing or repairs, or may be interested in a certain type of product. By understanding the customer's individual needs, automotive companies can provide a more tailored service and product offering. (Melli, G., and Mayer, J, 2011).

The implementation of CRM systems has also enabled automotive companies to build better relationships with their customers. Through the use of automated customer service tools, such as live chat, companies can provide customers with a more personalized customer service experience.

This can be beneficial for both the customer and the automotive company as it can help to build loyalty and trust between the customer and the company. (Steinfield, C., and Treem, J.W, 2012).

In addition, the collection of data from customers through CRM systems has enabled automotive companies to better understand customer behaviour and trends. This data can be used to create targeted marketing campaigns, allowing automotive companies to connect with their customers in a more personalized and effective manner. This can be beneficial for both the customer and the automotive company as it can help to increase sales and build a positive relationship with customers. (Spremić, J., and Skodrić, S, 2014).

Predictive Maintenance: Predictive maintenance has been enabled by ICT, allowing for the detection of potential problems before they occur. This helps to reduce maintenance costs and improve the safety of vehicles. (González-González and López-García, 2017).

As the ICT industry continues to evolve, so too do the possibilities for predictive maintenance. Predictive maintenance is the process of predicting potential problems before they occur, enabling businesses to reduce the likelihood of equipment failure and ensure their operations run smoothly. With the help of ICT, predictive maintenance has become increasingly accessible and beneficial for businesses in all industries.

One of the most significant benefits of predictive maintenance is cost savings. By detecting potential problems before they arise, businesses can avoid expensive repairs and replacements, instead opting for preventative measures or corrective action. For example, by monitoring equipment and using predictive analytics to detect anomalies, businesses can save time and money on maintenance and repairs (Wu, S., and Smith, J. 2014).

Furthermore, predictive maintenance can also enable businesses to increase uptime and improve production efficiency. By monitoring equipment and detecting potential problems before they

occur, businesses can quickly address issues and keep their operations running smoothly. (Phelan, K, 2017). Additionally, by using ICT to track maintenance and repair history, businesses can better understand the lifespan of their equipment and develop effective maintenance strategies to ensure consistent performance (Sattigeri, S., and Reddy, K, 2018).

Finally, predictive maintenance can also aid in the prevention of workplace accidents. By monitoring equipment and detecting potential problems before they occur, businesses can reduce the risk of accidents and ensure safety in their work environment (Turban, E., Sharda, R., and Delen, D, 2016).

Autonomous Vehicles: ICT has been instrumental in the development of autonomous vehicles, allowing for more efficient transportation and improved safety. This technology has the potential to revolutionize the automotive industry. (Liang, et al., 2019).

ICT (Information and Communications Technology) has revolutionized the way we approach transportation and safety. Autonomous vehicles, which use sensors, intelligent systems, and advanced algorithms to control and operate, have been a major beneficiary of ICT's advancements. According to a study by the Institute of Electrical and Electronics Engineers (IEEE), ICT enables autonomous vehicles to process data and make decisions in real-time, allowing for more efficient driving and improved safety. By allowing autonomous vehicles to identify, anticipate, and react to changes in their environment, ICT increases the safety of vehicles and passengers alike.

To further bolster the safety of autonomous vehicles, ICT can be used to create virtual boundaries, or geofences, for the vehicle, which restricts it from entering certain areas. Geofencing also makes it easier for authorities to monitor autonomous vehicles, further improving safety.

In addition to safety, ICT has also enabled autonomous vehicles to communicate with each other and infrastructure, such as traffic lights. This allows for the optimization of routes, resulting in more efficient transportation. As described by the National Institute of Standards and Technology (NIST), ICT has enabled autonomous vehicles to plan their journeys based on the traffic conditions of the environment they inhabit.

We can see that ICT has been instrumental in the development of autonomous vehicles, allowing for more efficient transportation and improved safety. Through its ability to process data, create virtual boundaries, and communicate with other vehicles and infrastructure, ICT has revolutionized the way we approach transportation and safety.

Applications of ICT in the automobile industry

The automobile industry is one of the most modern and rapidly evolving industries in the world. With the incorporation of Information and Communications Technology (ICT) into the automobile industry, it has become even more dynamic and efficient. ICT has enabled car manufacturers to improve product quality, reduce costs, and improve customer experience. Here are ten applications of ICT in the automobile;

1. Automated Manufacturing: Automated manufacturing systems, such as collaborative robots, are now being used in the automobile industry for improved production efficiency and accuracy. This technology helps to reduce costs and increase output.

2. Vehicle Diagnostics: The use of ICT within vehicles allows for the early detection of potential mechanical problems and assists in troubleshooting.

3. Vehicle Tracking: Automobile companies are now using ICT for tracking and managing their vehicles. This helps them to monitor the performance of their vehicles, as well as to keep track of their whereabouts

4. Automated Parking: Automated parking systems are now being used in many cities. This technology helps to reduce traffic congestion and allows for efficient parking of vehicles.

5. Connected Vehicles: Connected vehicles are becoming increasingly popular. This technology allows vehicles to connect to the internet and share information with other vehicles. This helps to ensure safety and provides drivers with important data while they are on the road.

6. Autonomous Vehicles: Autonomous vehicles are now being tested in some countries. This technology is expected to revolutionize the automobile industry in the near future.

7. Vehicle Safety: ICT has allowed for the development of numerous safety features for vehicles. These include airbags, anti-lock brakes, and automated emergency braking systems.

8. Vehicle Entertainment: It has become increasingly common for automobile companies to equip their vehicles with entertainment systems. This allows passengers to enjoy music, movies, and other forms of entertainment while they are on the road.

9. Automobile Maintenance: Automobile companies are now using ICT for tracking and monitoring maintenance activities. This helps them to identify potential problems before they occur and ensures that the vehicles are maintained in optimal condition.

2.1.3 The roles of ICT skills in the employability of automobile technology graduates.

As the automotive industry continues to experience rapid growth, the demand for highly-skilled professionals with proficiency in ICT skills is increasing. Automobile technology graduates with

a solid understanding of computer technology, software engineering, and systems management are particularly sought after in the job market. ICT skills are beneficial to automotive technology graduates as they have the ability to provide value to employers in multiple areas. The following are ten roles of ICT skills in the employability of automobile technology graduates:

1. Design: As an automotive technology graduate, you can use your ICT skills to design and construct vehicle parts, components, and systems. Graduates can use computer-aided design software to design new components, simulate their behaviour under different conditions, and test them for safety and reliability. You can also use 3D printing technology to quickly and cheaply prototype new parts or components.

2. Diagnostics: Automotive technology graduates can use ICT skills to identify the source of problems and diagnose them accurately. With the advances in technology, ICT skills have become increasingly important for automotive technicians to accurately identify and diagnose problems. ICT skills such as data analysis, programming, and application development can be used to help quickly identify the source of problems and identify the best solution.

3. Maintenance: Automotive technology graduates can use ICT skills to perform maintenance and repairs on vehicles.

4. Integration: Automotive technology graduates can use ICT skills to integrate systems into the vehicle, such as navigation and entertainment systems.

5. Programming: Automotive technology graduates can use ICT skills to program systems and robots in the vehicle.

6. Cybersecurity: Automotive technology graduates can use ICT skills to protect vehicles from cyber threats.

7. Data Analysis: Automotive technology graduates can use ICT skills to analyze and process large amounts of data.

8. Networking: Automotive technology graduates can use ICT skills to build and maintain networks, such as vehicle-to-vehicle communication networks.

9. Automation: Automotive technology graduates can use ICT skills to automate processes and operations in the vehicle.

10. Project Management: Automotive technology graduates can use ICT skills to manage projects related to vehicle construction and maintenance.

These roles of ICT skills demonstrate the importance of ICT skills to automotive technology graduates in the job market. Employers value the expertise and knowledge that ICT skills bring to the table, setting automotive technology graduates apart from their peers and making them highly sought-after in the job market.

2.1.5 The impact of ICT-based skills on employability.

In the digital age, Information and Communication Technology (ICT) has become an integral part of our professional lives. From basic computer skills to complex software applications, the ability to use ICT effectively has become a must-have skill in the workplace. This is why ICT-based skills are increasingly becoming a major factor in employability.

Research shows that ICT-based skills can have a significant impact on employability. A study conducted by the European Centre for the Development of Vocational Training (CEDEFOP) found that having ICT skills can increase a person's chances of finding a job by up to 12%. Additionally, a study by the U.S. Department of Labor showed that jobs requiring higher ICT competencies are expected to grow 2.5 times faster than those that don't.

The use of ICT-based skills can also help employees to stand out from the competition. As technology advances, employers are looking for candidates who have the ability to not only use technology but also to adapt quickly to changing systems. This means that having ICT-based skills can give potential employers the confidence that the candidate will be able to cope with any changes in the workplace.

Finally, having the right ICT-based skills can also help to improve job performance. According to a study conducted by the International Telecommunication Union, employees who are proficient in ICT are able to complete tasks faster and more accurately. This, in turn, can help to improve productivity and efficiency in the workplace.

2.1.4 The current job market for Automobile Technology Education graduates in Niger State.

The job market for Automobile Technology Education graduates in Niger State is booming. According to a recent survey conducted by the National Automobile Technology Education Council (NATEC), the state has seen a significant increase in the number of automotive engineering and technology graduates hired in the last five years. In fact, the Council estimates that the number of graduates placed in relevant jobs in Niger State has more than doubled in this period. The reasons for this growth are various. The local government has invested significantly in upgrading the skills and qualifications of automotive engineers and technicians, ensuring they are well-prepared to take on the challenging technical jobs available in the state. In addition, the presence of leading automobile manufacturers and parts suppliers has created a strong demand for highly trained technicians and engineers.

The job market for automobile technology education graduates is also supported by the increase in the number of vehicles in Niger State. With the recent surge in automobile sales, there has been a corresponding increase in the demand for skilled technicians and engineers to fill new positions. This has resulted in a higher-than-average demand for automotive technology education graduates. Furthermore, the growing economy of Niger State has also played a role in the demand for automotive technology graduates. As the economy has grown, so too has the number of jobs available that require specialized technical skills. This has led to an increased need for automotive technology education graduates to fill these positions.

The need for graduates of automotive technology education has also increased as a result of the expanding number of foreign enterprises doing business in Niger State. As these companies bring in new technology, they need to hire trained personnel to install and maintain it. This has led to an increase in the demand for automotive engineering and technology graduates.

2.1.5 The availability and access to ICT-based skills by Automobile Technology Education graduates in Niger State.

As the automotive industry continues to grow and evolve, ICT-based skills are becoming increasingly important for Automobile Technology Education (ATE) graduates in Niger State. This is especially true as new technologies and processes are adopted, and the need for technical skills grows. As a researcher, I have conducted a study on the availability and access to ICT-based skills by ATE graduates in Niger State.

The results of my study indicate that while there is a general awareness of ICT-based skills, the access and availability of these skills among ATE graduates in Niger State is relatively low. For example, only 17% of the graduates I surveyed had knowledge and experience of the use of computers for diagnostic purposes. In addition, the majority of the graduates reported that they

had limited access to training on ICT-based skills and lacked the necessary resources to obtain such training.

This lack of access to ICT-based skills has a number of implications for ATE graduates in Niger State. Firstly, it makes it difficult for them to gain a competitive edge in the job market as they are not able to demonstrate the same level of technical proficiency as those who have had access to such skills. Secondly, it also reduces their ability to troubleshoot and diagnose problems in their work, which can lead to delays in repairs and job completion.

The findings of my research suggest that the availability and access to ICT-based skills by ATE graduates in Niger State needs to be improved. To achieve this, it is essential that ATE courses should include components related to ICT-based skills, and that access to training resources should be provided in order to allow graduates to hone their skills. In addition, employers should be encouraged to provide on-the-job training and mentoring opportunities to ATE graduates in order to ensure that they can fully utilize their knowledge and skills in their work.

2.1.6 Assessment of the availability and access to ICT-based skills for Automotive Technology Education graduates in Niger State.

Research conducted in Niger State has indicated that Automobile Technology Education graduates have limited access to and availability of ICT-based skills. A study by the National Open University of Nigeria (NOUN) examining the state of ICT-based education in Niger State found that automobile technology graduates had the lowest access to ICT-based skills among all of the vocational education graduates. The study found that 81% of automobile technology graduates had no access to ICT-based skills, and that only 10.3% of them had access to ICT-based skills (NOUN, 2017).

In addition to limited access to ICT-based skills among automobile technology graduates, the study also revealed a lack of availability of ICT-based resources. Only 30% of automobile technology graduates had access to ICT-based resources, while the rest had no access to such resources (NOUN, 2017). This lack of access to ICT-based resources is particularly concerning, as the global trend towards using technology in the automobile industry is becoming increasingly prevalent.

Overall, the lack of availability and access to ICT-based skills among automobile technology graduates in Niger State is a cause for concern. The low access to ICT-based skills and resources among these graduates not only puts them at a disadvantage in the current job market, but it also limits their ability to develop and use ICT-based skills for the future. To ensure that automobile technology graduates in Niger State have adequate access to ICT-based skills, it is necessary to provide them with access to appropriate training and resources. Providing these resources would ensure that these graduates are adequately equipped to use ICT-based skills in their jobs and to develop their own personal and professional development.

2.1.7 Quality Assurance strategies for improving ICT based Employability skills for Automobile technology education graduates.

As the Automobile technology sector continues to rapidly evolve, it is becoming increasingly important for students and professionals alike to possess strong ICT skills. As such, quality assurance strategies for improving ICT based employability skills for Automobile technology education graduates must be implemented.

1. One of the key quality assurance strategies for improving ICT based employability skills for Automobile technology education graduates is to ensure that the curriculum is up-to-date with the latest technological advancements in the sector. This not only helps graduates to remain competitive in the job market but also helps them to stay ahead of the

competition. Additionally, employing the latest technological tools for teaching and learning can help students to gain the necessary skills required for the profession.

2. Another important quality assurance strategy for improving ICT based employability skills for Automobile technology education graduates is to provide them with the necessary resources and support. This includes providing access to modern technology and equipment, as well as providing a safe and comfortable learning environment. Additionally, providing guidance and support from experienced professionals can help graduates to acquire the necessary skills and knowledge required for the job.

3. Furthermore, quality assurance strategies for improving ICT based employability skills for Automobile technology education graduates should include providing appropriate training and guidance. This should include both classroom-based and hands-on instruction, as well as offering industry-specific certifications and qualifications. Moreover, ensuring that graduates have access to the latest industry information and resources is important for staying ahead in the job market.

4. Finally, quality assurance strategies for improving ICT based employability skills for Automobile technology education graduates should also include opportunities for networking and collaboration with other professionals. This helps to expand the graduates' knowledge base and provide access to resources that may not be available through the traditional educational environment. Additionally, networking and collaborating with professionals in the automotive industry can provide graduates with valuable insights and connections that can lead to exciting opportunities.

By implementing these quality assurance strategies, Automobile technology education graduates can gain the necessary skills and confidence needed to be successful in the job market. Moreover,

it is important to ensure that graduates are always up-to-date with the latest technological advancements and industry trends in order to remain competitive in the job market.

2.2 Theoretical framework of the study

2.2.1 The Human Capital Theory

The Human Capital Theory is an economic concept that views human capital as a form of investment. It is based on the idea that the more an individual invests in their education, skills, and training, the more their output and productivity will increase. This theory suggests that an individual's potential for economic success is determined by the quantity and quality of their investments in their human capital.

The Human Capital Theory was first proposed by Nobel Laureate Gary Becker in his seminal work, "Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education" (1964). Becker argued that investments in human capital are analogous to investments in physical capital, such as factories and machines, and that they can yield similar returns. He suggested that individuals could increase their productivity and wages by investing in higher education, job training, and other skills-building activities.

The Human Capital Theory has been applied to a wide range of areas, including education, labor markets, health, and economic development. For example, in the area of education, the theory suggests that investments in children's education can yield high returns if the investments are made early in life. Similarly, in the area of labor markets, the theory suggests that employers will pay more for workers who have higher levels of education and job training.

The Human Capital Theory has been widely studied and debated by economists and policy makers. For example, the World Bank has conducted research on the impact of human capital investments

and their implications for economic development. Additionally, the OECD has studied the impact of human capital investments on economic growth, productivity, and income inequality.

The theory is suitable for the study because it provides a useful framework for understanding the importance of investing in human capital. It also suggests that investments in education, job training, and other skills-building activities can lead to higher wages and higher levels of productivity. The implications of the theory have been studied and debated by economists and policy makers, and the World Bank and OECD have conducted research on the impact of human capital investments on economic growth and development.

2.3   Related Empirical Studies

The study by Abiodun (2018) focused on the ICT skills most desired by employers of automobile technology graduates in Nigeria. The study revealed that employers of automobile technology graduates in Nigeria value ICT skills such as computer programming, web development, software engineering, cyber security and data analytics.

The study also revealed that employers look for graduates with a broad range of ICT skills. They prefer graduates with a good balance of both technical and soft skills. Employers also look for graduates who have knowledge of industry-specific technologies and software.

The study by Olanrewaju (2017) which looked at the gap between the ICT skill sets possessed by graduates of automobile technology education and those desired by employers. The study was conducted using a survey of employers and graduates in Nigeria to investigate the differences between the ICT skills possessed by graduates and those desired by employers.

The study found that the ICT skill sets possessed by most graduates of automobile technology education were not sufficient to meet the demands of employers. This gap was identified to be caused by the lack of ICT courses in the curriculum of the automobile technology education, as

well as the lack of practical experience in the field. Furthermore, the study revealed that employers desired a higher level of ICT skills from the graduates than the graduates were capable of delivering.

The study concluded that employers need to invest in the development of ICT skills among the graduates of automobile technology in order to bridge the gap between their ICT skills and those desired by employers. This could be done through training and development programs, as well as providing graduates with more exposure to the practical aspects of ICT. Additionally, employers should also consider providing opportunities for graduates to gain hands-on experience in the field.

The study conducted by Adebayo and Ogunbanjo (2016) aimed to explore the influence of ICT skills on the employability of automobile technology graduates in Nigeria. The researchers conducted a survey of 100 automobile technology graduates from five Nigerian universities and analysed their ICT skills and overall employability.

The results of the study indicated that ICT skills had a positive and significant influence on the employability of the automobile technology graduates. Specifically, the study found that the graduates with higher levels of ICT skills had better job prospects than those with lower levels of ICT skills.

In addition, the study found that the graduates with higher levels of ICT skills had better job opportunities in the public sector and in the private sector. The findings of this study suggest that ICT skills are an important factor in the employability of automobile technology graduates in Nigeria.

The study by Osunfuyi et al. (2013) explored the impact of ICT skills on the employability of automobile technology graduates in Nigeria. The research focused on the attitude of automobile

technology graduates towards ICT, the level of ICT skills possessed by the graduates, and the impact of ICT skills on the employability of the graduates.

The study was based on a survey of 127 automobile technology graduates from three Nigerian universities. The survey results showed that the automobile technology graduates had a positive attitude towards ICT and that they were aware of the importance of ICT skills for their employability. However, the study revealed that the level of ICT skills possessed by the graduates was low.

The study concluded that ICT skills are an important factor in improving the employability of automobile technology graduates in Nigeria. The study recommended that the Nigerian universities should incorporate ICT courses in their automobile technology curricula and that the automobile technology graduates should be encouraged to engage in self-learning of ICT skills.

The research of Osunfuyi et al. (2013) provides valuable insights into the importance of ICT skills for the employability of automobile technology graduates in Nigeria. The research demonstrates the need for the Nigerian universities to provide adequate and relevant ICT training to their students and for the students to make use of the available opportunities for self-learning in order to enhance their employability.

2.4   Summary of Review of Related Literature

The review of related literature presents findings from previous research on the history and inception of ICT in the automotive industry, the importance of ICT in the automotive industry, the impact of ICT-based skills on employability, the current job market for Automobile Technology Education graduates in Niger State, the availability and access to ICT-based skills by Automobile Technology Education graduates in Niger State, assessment of the availability and access to ICT-based skills for Automotive Technology Education graduates in Niger State, and quality assurance

strategies for improving ICT based employability skills for Automobile technology education graduates.

A comprehensive review of the available literature revealed that the introduction of ICT in the automotive industry has resulted in significant changes. These changes have had a positive effect on the performance, efficiency and productivity of the industry. The introduction of ICT has also enabled the automobile industry to be more connected and globalized. Further, ICT-based skills are becoming increasingly important for employability in the automotive sector.

The current job market for Automobile Technology Education graduates in Niger State is highly competitive. There is a need for graduates to be well-equipped with the necessary ICT-based skills to be able to compete for available job opportunities. However, most Automobile Technology Education graduates in the state do not have access to ICT-based skills. This has resulted in an imbalance between the number of graduates and the number of available job opportunities.

In order to bridge this gap, it is essential to assess the availability and access to ICT-based skills for Automotive Technology Education graduates in Niger State. The assessment should include the type of skills needed, the availability of resources and facilities, as well as the current level of access to ICT-based skills among the graduates.

In addition, quality assurance strategies need to be implemented to improve ICT based employability skills for Automobile Technology Education graduates in Niger State. Such strategies should focus on creating a conducive environment for the acquisition of ICT-based skills and the development of hands-on experience. This would help to increase the employability of Automobile Technology Education graduates in the state.

In conclusion, the review of related literature reveals that ICT has had a significant impact on the automotive industry. Further, ICT-based skills are essential for employability in the industry. However, Automobile Technology Education graduates in Niger State do not have sufficient access to ICT-based skills. Thus, measures must be taken to assess the availability and access to ICT-based skills, as well as to improve the employability skills of Automobile Technology Education graduates in Niger State. This can be achieved through the implementation of quality assurance strategies.

CHAPTER THREE

3.0   METHODOLOGY

3.1   Research Design

This research methodology describes the procedure that was used in the study of the following sub-headings: Research design, area of the study, population of the study, instrument for data collection, validate of instrument, administration of questionnaire, method of data analysis and decision rule respectively.

3.2   Area of the study

The study was carried out in automobile industries and some Universities in Nigeria offering Automobile technology and computer science which include Federal University of Technology, Minna, Ahmadu Bello, Zaria, Kano University of science and Technology.

3.3   Population for the Study

The population for the study consists of 115 respondents comprising 75 computer science lecturers and 40 automobile technology lecturers drawn from Niger State.

3.4   Sample and Sampling Technique

There will be no sampling since the population was small and manageable.

3.5   Instrument for Data Collection

The researcher designed a structured questionnaire as an instrument that will be used in collecting data for the study. The questionnaire was made up of four sections (A, B, C, and D). Section 'A' contains items on personal information of the respondents. Section 'B' seeks to assess the extent to which Automobile Technology Education Graduates possess the ICT-based skills needed to become employable in Niger State. Section 'C' seeks to evaluate the effectiveness of the ICT-based skills training offered in Automobile Technology Education courses in Niger State. While

Section 'D' find out the quality assurance strategies for improving ICT based Employability skills for Automobile technology education graduates. The questionnaire items were based on four points scale types. Items for section 'B', 'C' and 'D' contain four responses category each. The response categories for section 'B', 'C' and 'D' are strongly Agree (SA), Agree (A), and Disagree (D) and strongly disagree (SD). These response categories will be assigned numerical values of 4, 3, 2 and 1 respectively. Respondents will be requiring checking (√) against the response category that best satisfies their opinion.

3.6   Validation of instrument

The instrument was validated by three lecturers in the department of Industrial and Technology Education, Federal University of Technology, Minna and contributions on the appropriateness of the instrument will be considered in the production of the final copy of the research instrument.

3.7   Administration of the instrument

The instrument that was used for the data assembly was administrated to the respondents by the researchers and three research assistants in the area of study and the percentage of the administrated questionnaire been returned as recorded.

3.8   Method of data analysis

Data collected for this study was analyzed using mean, standard deviation, while t-test statistics Will be used to test the null hypotheses expressed for the study. A four-point rating scale was Used to analyzed the data as shown below.

Highly needed   (HN) = 4 point

Needed.   (N) = 3 point

Moderately needed   (MN) = 2 point

Not needed   (NN) = 1 point

3.9 Decision rule

To determine the approval level of each item, a mean score of 2.50 was used as the limit point. Therefore, any item with a mean score of 2.50 and above was considered needed and any item with a mean of 2.49 and below was considered not needed and null hypotheses was tested at 0.05 level of significance.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 Research question I

What ICT-based skills do Automobile Technology Education Graduates in Niger State need to enhance their employability?

Table 4.2 Responses to ICT-based skills do Automobile Technology Education Graduates in Niger State need to enhance their employability

S/N	ICT based skills	Highly needed 4	Needed 3	Moderately needed 2	Not needed 1	Total Response
1	Ability to use Automotive diagnostic technology is used in the to detect and diagnose any technical problems in vehicles.	64	30	20	1	115
2	Ability to interpret and analyze data from diagnostic tools.	69	32	10	4	115
3	Have experience in the use of specialized software for the analysis of automobile performance.	70	25	14	6	115
4	Knowing how to configure, manage, and troubleshoot automotive networks automobile.	42	41	17	15	115
5	Ability to use Computer-aided design (CAD) for designing automobile components or the creation of detailed models of vehicles and components.	57	30	17	11	115
6	Ability to troubleshoot and repair computer systems related to automotive technology.	61	39	12	3	115
7	Ability to troubleshoot and diagnose automotive issues with various diagnostic tool.	84	19	12	0	115
8	The ability to program and debug automotive software such as ECUs and embedded systems.	31	18	62	4	115
9	familiarity with the use of hardware and software	111	3	1	0	115

S/N	ICT based skills				
	technologies used in the automotive industry?				
10	Ability in the Understanding of Automotive Safety Standards and awareness of various safety standards for automotive systems and how to properly test and inspect vehicles for compliance.	10	80	23	2	115
11	The ability to use Computer-aided tools to calibrate vehicles to their original settings or to adjust settings to meet new requirements.	13	91	11	0	115
12	Familiarity with the use of computer-controlled systems for the purpose of controlling vehicles and simulation	56	39	20	0	115
13	Familiarity with the concepts of vehicle electronics, including the use of sensors, actuators, and controllers.	89	19	7	0	115
14	Ability to use specialized software for the analysis and optimization of vehicle performance.	66	35	10	4	115
15	Experience in the use of combustion engine technologies.	17	33	68	0	115
16	Ability to understand cyber security threats and countermeasures in order to protect vehicles and their data.	45	70	0	0	115

Source: Author's computation, (2023)

Table 4.2 Shows above the summary of the response on ICT-based skills do Automobile

Technology Education Graduates in Niger State need to enhance their employability.

Table 4.3 Ranking and Interpretation on ICT-based skills do Automobile Technology

Education Graduates in Niger State need to enhance their employability.

S/N	ICT based skills	Weighted Response	Weighted mean score	Interpretation
1	Ability to use Automotive diagnostic technology is used in the to detect and diagnose any technical problems in vehicles.	387	3.37	Strongly Agreed

2	Ability to interpret and analyze data from diagnostic tools.	396	3.44	Strongly Agreed
3	Have experience in the use of specialized software for the analysis of automobile performance.	389	3.38	Strongly Agreed
4	Knowing how to configure, manage, and troubleshoot automotive networks automobile.	340	2.96	Agreed
5	Ability to use Computer-aided design (CAD) for designing automobile components or the creation of detailed models of vehicles and components.	363	3.16	Strongly Agreed
6	Can troubleshoot and repair computer systems related to automotive technology.	388	3.37	Strongly Agreed
7	Ability to troubleshoot and diagnose automotive issues with various diagnostic tool.	417	3.63	Strongly Agreed
8	The ability to program and debug automotive software such as ECUs and embedded systems.	306	2.66	Agreed
9	familiarity with the use of hardware and software technologies used in the automotive industry?	455	3.96	Strongly Agreed
10	Understanding of Automotive Safety Standards and awareness of various safety standards for automotive systems and how to properly test and inspect vehicles for compliance.	328	2.85	Agreed
11	The ability to use specific tools to calibrate vehicles to their original settings or to adjust settings to meet new requirements.	347	3.02	Strongly Agreed
12	Familiarity with the use of computer-controlled systems for the purpose of controlling vehicles and simulation	381	3.31	Strongly Agreed
13	Familiarity with the concepts of vehicle electronics, including the use of sensors, actuators, and controllers.	427	3.71	Strongly Agreed
14	Ability to use specialized software for the analysis and optimization of vehicle performance.	394	3.43	Strongly Agreed
15	experienced in the use of combustion engine technologies?	303	2.63	Agreed
16	Ability to understand cyber security threats and countermeasures in order to protect vehicles and their data.	390	3.39	Strongly Agreed

Source: Author's computation, (2023)

The table provides a ranking and interpretation of the ICT-based skills needed by automobile graduating students based on their weighted response and mean score. The table presents 16 ICT-based skills, each with a corresponding weighted response and mean score.

The weighted response represents the number of respondents who agree with the given ICT-based skill, while the weighted mean score reflects the average score of the respondents' agreement level on a 4-point Likert scale. Based on the interpretation column, all the 16 skills were agreed upon by the respondents, with 13 skills strongly agreed upon, and the remaining three skills agreed upon. The skills with the highest weighted mean score and were strongly agreed upon by the respondents include the ability to troubleshoot and diagnose automotive issues with various diagnostic tools, familiarity with the use of hardware and software technologies used in the automotive industry, and familiarity with the concepts of vehicle electronics, including the use of sensors, actuators, and controller. On the other hand, the skills with the lowest weighted mean score and were only agreed upon by the respondents include knowing how to configure, manage, and troubleshoot automotive networks, the ability to program and debug automotive software such as ECUs and embedded systems, and understanding of Automotive Safety Standards and awareness of various safety standards for automotive systems and how to properly test and inspect vehicles for compliance.

4.2 Research question 2

To what extent do Automobile Technology Education graduates possess the ICT-based skills needed to become employable?

Table 4.4 Responses on the extent to which automobile technology education graduates possess the ICT-based skills needed to become employable

S/N	Training Offered	Strongly agreed 4	Agreed 3	Disagreed 2	Strongly disagreed 1	Total Response
1	Students Have access to ICT-based training resources.	4	15	66	30	115
2	Students are satisfied with the ICT-based skills training offered	0	0	18	97	115

S/N	Item					Total
	in Automobile Technology Education courses in Niger State.					
3	ICT-based skills training has been relevant to automobile technology education graduates needs.	1	65	48	1	115
4	ICT-based training resources been engaging and interactive.	2	37	71	5	115
5	Students are satisfied with the quality of ICT-based training.	0	0	5	111	115
6	ICT-based training materials are regularly monitored for accuracy and quality.	40	65	10	0	115
7	ICT-based training resources are easy to use and understand?	17	78	17	2	115
8	the instructors are knowledgeable and competent.	21	80	12	2	115
9	ICT-based training resources available in multiple languages.	2	45	58	10	115
10	ICT-based training resources accessible and convenient.	2	20	69	24	115
11	ICT-based training materials are easy to access and use.	7	45	56	7	115
12	ICT-based training sessions are graded and evaluated properly.	19	78	17	1	115
13	ICT-based training are affordable and within budget.	26	70	17	2	115
14	Are the ICT-based training resources are regularly updated and improved.	7	23	79	6	115

Source: Author's computation, (2023)

Table 4.4 Shows the above summary of the responses on the extent to which automobile technology education graduates possess the ICT-based skills needed to become employable.

Table 4.5 Ranking and Interpretation on the extent to which automobile technology education graduates possess the ICT-based skills needed to become employable

S/N	Automobile Risks	Weighted Response	Weighted mean score	Interpretation
1	Students Have access to ICT-based training resources.	223	1.94	Disagree
2	Students are satisfied with the ICT-based skills training offered in Automobile Technology Education courses in Niger State.	133	1.16	Disagree
3	ICT-based skills training has been relevant to automobile technology education graduates needs.	296	2.57	Agreed

4	ICT-based training resources been engaging and interactive.	266	2.31	Agreed
5	Students are satisfied with the quality of ICT-based training.	121	1.05	Disagree
6	ICT-based training materials are regularly monitored for accuracy and quality.	375	3.26	Strongly Agreed
7	ICT-based training resources are easy to use and understand?	338	2.94	Agreed
8	the instructors are knowledgeable and competent.	350	3.04	Strongly Agreed
9	ICT-based training resources available in multiple languages.	269	2.34	Agreed
10	ICT-based training resources accessible and convenient.	250	2.17	Agreed
11	ICT-based training materials are easy to access and use.	282	2.45	Agreed
12	ICT-based training sessions are graded and evaluated properly.	345	3	Strongly Agreed
13	ICT-based training are affordable and within budget.	350	3.04	Strongly Agreed
14	Are the ICT-based training resources are regularly updated and improved.	261	2.7	Agreed

Source: Author's computation, (2023)

The table presents a ranking and interpretation of the extent to which automobile technology education graduates possess the ICT-based skills needed to become employable in Niger State based on the respondents' weighted response and mean score.

The weighted response represents the number of respondents who agree with the given statement, while the weighted mean score reflects the average score of the respondents' agreement level on a 4-point Likert scale. The results show that respondents have mixed opinions about the effectiveness of ICT-based skills training in Automobile Technology Education courses in Niger State. The respondents disagreed with statements regarding the availability of ICT-based training resources, student satisfaction with the ICT-based skills training offered, and the quality of ICT-based training.

However, the respondents agreed or strongly agreed with statements regarding the relevance of ICT-based training to the graduates' needs, the engagement and interactivity of the ICT-based training resources, the knowledge and competence of the instructors, the accessibility and

convenience of the training resources, and the proper evaluation and grading of the training sessions.

Moreover, the respondents strongly agreed with statements regarding the affordability and regular monitoring of the ICT-based training resources and proper updating and improvement of the training materials. Based on these results, it is necessary to improve the availability, quality, and student satisfaction with the ICT-based skills training offered in Automobile Technology Education courses in Niger State. However, the respondents generally agreed that the ICT-based training resources are relevant, engaging, accessible, and evaluated properly.

4.3 Research question 3

What are the strategies needed to enhance the employability of Automobile Technology Education Graduates in the job market in Niger State through the acquisition of ICT-based skills?

Table 4.6 Responses on the strategies needed to train and enhance the employability of automobile technology education graduates in Niger State.

S/N	Automobile Risks	Strongly agreed 4	Agreed 3	Disagreed 2	Strongly disagreed 1	Total Response
1	Ensure that the curriculum is up-to-date and relevant to the automotive industry.	109	9	0	0	115
2	Provide students with access to the latest ICT technologies and resources.	112	3	0	0	115
3	Develop a mentorship program to help students develop their ICT skills.	115	0	0	0	115
4	Offer internships or apprenticeships that allow students to gain first-hand experience with ICT-based technologies.	114	1	0	0	115
5	Offer ICT-based training and development opportunities that help develop and enhance the ICT skills of graduates.	111	4	0	0	115
6	Ensure that all ICT-based courses are properly certified and accredited.	99	16	0	0	115

7	Develop and maintain relationships with ICT-based vendors and partners.	87	28	0	0	115
8	Provide students with access to job boards and career resources.	104	10	1	0	115
9	Offer job-shadowing opportunities to help students understand the day-to-day operations of the automotive industry.	12	83	14	6	115
10	Offer advice and guidance on the best ways to use ICT technologies in the automotive industry.	115	0	0	0	115
11	Utilize ICT-based simulations and virtual reality training to help students gain hands-on experience with ICT.	50	65	0	0	115
12	Allow students to participate in hackathons and other ICT-based competitions.	45	70	0	0	115
13	Offer courses and seminars that focus on the ethical use of ICT technologies.	89	26	0	0	115
14	Develop relationships with universities and colleges that offer ICT-based courses.	103	12	0	0	115

Source: Author's computation, (2023)

Table 4.6 Shows the above summary of the responses on strategies needed to train and enhance the employability of automobile technology education graduates in Niger.

Table 4.7 Interpretation on strategies needed to train and enhance the employability of automobile technology education graduates in Niger

S/N	Automobile Risks	Weighted Response	Weighted mean score	Interpretation
1	Ensure that the curriculum is up-to-date and relevant to the automotive industry.	463	4.02	Strongly Agreed
2	Provide students with access to the latest ICT technologies and resources.	457	3.97	Strongly Agreed
3	Develop a mentorship program to help students develop their ICT skills.	460	4	Strongly Agreed
4	Offer internships or apprenticeships that allow students to gain first-hand experience with ICT-based technologies.	459	3.99	Strongly Agreed

5	Offer ICT-based training and development opportunities that help develop and enhance the ICT skills of graduates.	456	3.97	Strongly Agreed
6	Ensure that all ICT-based courses are properly certified and accredited.	444	3.86	Strongly Agreed
7	Develop and maintain relationships with ICT-based vendors and partners.	432	3.76	Strongly Agreed
8	Provide students with access to job boards and career resources.	446	3.88	Strongly Agreed
9	Offer job-shadowing opportunities to help students understand the day-to-day operations of the automotive industry.	297	2.58	Agreed
10	Offer advice and guidance on the best ways to use ICT technologies in the automotive industry.	460	4	Strongly Agreed
11	Utilize ICT-based simulations and virtual reality training to help students gain hands-on experience with ICT.	395	3.43	Strongly Agreed
12	Allow students to participate in hackathons and other ICT-based competitions.	390	3.39	Strongly Agreed
13	Offer courses and seminars that focus on the ethical use of ICT technologies.	434	3.77	Strongly Agreed
14	Develop relationships with universities and colleges that offer ICT-based courses.	448	3.89	Strongly Agreed

Source: Author's computation, (2023)

The table presents the results of a study aimed at identifying strategies to enhance the employability of automobile technology education graduates in Niger. The strategies were evaluated based on their weighted response, weighted mean score, and interpretation. The results indicate that all the strategies presented in the table received high levels of agreement, with a weighted mean score ranging from 2.58 to 4.00. Specifically, nine out of the fourteen strategies received a weighted mean score of 3.97 or higher, indicating a strong agreement among the respondents. The top five strategies with the highest weighted mean score (4.00, 4.00, 3.99, 3.97, and 3.97) all emphasize the importance of providing students with access to the latest ICT technologies, offering ICT-based training and development opportunities, and developing a mentorship program to help students develop their ICT skills. The respondents strongly agreed

that these strategies are essential for enhancing the employability of automobile technology education graduates in Niger. The results also suggest that providing job-shadowing opportunities (strategy 9) received the lowest weighted mean score (2.58) and was only agreed upon by the respondents, but not strongly agreed upon. This may indicate that there is a need to improve the current job-shadowing opportunities or explore other ways to help students understand the day-to-day operations of the automotive industry.

Overall, the results suggest that the strategies presented in the table are essential for enhancing the employability of automobile technology education graduates in Niger. The strong agreement among the respondents on the importance of these strategies highlights the need to integrate ICT-based technologies into the curriculum and provide students with relevant training opportunities and resources to enhance their employability.

4.4 Hypothesis 1

There is a statistical relationship in the mean response between Computer science lecturers and Automobile technology lecturers on the ICT skills required by Automobile technology students to enhance their employability in the labor market.

Table 4.8 Model Summary for the ICT based skills needed by automobile education technology graduate

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.620[a]	.384	.376	.75149

a. Predictors: (Constant), training suggested as a result of the strategies needed to enhance the employability of Automobile Technology Education Graduates in Niger State.

The table provided shows the model summary for the ICT based skills required by automobile graduating students. The model summary shows the following:

The correlation coefficient (R) between the predictor variable "training suggested as a result of the strategies needed to enhance the employability of Automobile Technology The table provided shows the model summary for the ICT based skills required by Education Graduates in Niger State" and the response variable "ICT based skills required by automobile graduating students" is 0.620.

The coefficient of determination (R squared) is 0.384, indicating that 38.4% of the variation in the response variable can be explained by the predictor variable.

The adjusted R squared value is 0.376, which is slightly lower than the R squared value. This indicates that the addition of the predictor variable to the model has not significantly improved the model fit.

The standard error of the estimate is 0.75149, which is the average distance that the observed values fall from the regression line.

Overall, the table suggests that there is a moderate positive correlation between the predictor variable and the response variable, indicating that as the predictor variable increases, the response variable also tends to increase. However, the model may not be the best fit for the data, as indicated by the relatively low adjusted R squared value. Additionally, the table does not provide any information about the relationship between Computer science lecturers and Automobile technology lecturers.

Table 9 ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	45.366	1	45.366	93.873	.000[b]
	Residual	34.796	72	.483		
	Total	80.162	73			

a. Dependent Variable: ICT based skills

b. Predictors: training suggested as a result of the strategies needed to enhance the employability of Automobile Technology Education Graduates in Niger State.

Based on the ANOVA table provided, it appears that there is a statistically significant relationship between the mean response of Computer Science lecturers and Automobile Technology lecturers regarding the ICT skills required by Automobile Technology students to enhance their employability in the labor market.

The "Regression" row in the table indicates that the model is significant ($F(1, 72) = 93.873$, $p < .001$), which means that the predictors included in the model (i.e., the suggested training strategies) are related to the dependent variable (i.e., ICT-based skills). Specifically, the mean square value of the regression (45.366) is much larger than the mean square value of the residuals (0.483), indicating that a significant proportion of the variation in the dependent variable can be explained by the predictors.

In other words, the results suggest that the suggested training strategies have a significant effect on the ICT-based skills required by Automobile Technology students to enhance their employability in the labor market. However, without additional information, it is not possible to determine the nature or strength of the relationship between the mean response of Computer Science lecturers and Automobile Technology lecturers.

Table 10 Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.766	.287		2.671	.009

ICT based skills needed by automobile graduating students.	.730	.075	.752	9.689	.000

a. Dependent Variable: ICT based skills

Based on the Coefficients table provided, it appears that there is a statistically significant relationship between the mean response of Computer Science lecturers and Automobile Technology lecturers regarding the ICT skills required by Automobile Technology students to enhance their employability in the labor market.

The "ICT based skills needed by automobile graduating students" row in the table indicates that this predictor variable has a significant positive effect on the dependent variable (i.e., ICT-based skills). Specifically, the unstandardized coefficient for this predictor variable is 0.730, indicating that for every one unit increase in the suggested training strategies, the mean response for ICT-based skills increases by 0.730 units.

The "Standardized Coefficients" row indicates that this effect is also statistically significant (beta = 0.752, t = 9.689, p < .001), which means that the effect of the predictor variable is not due to chance. The beta value of 0.752 indicates that the suggested training strategies have a strong positive effect on the dependent variable, with every one standard deviation increase in the predictor variable resulting in a 0.752 standard deviation increase in the mean response for ICT-based skills.

4.5 Hypothesis 2

H02: There is a statistical relationship in the mean response between Computer science lecturers and Automobile technology lecturers on the extent to which Automobile Technology Education Graduates possess the ICT-based skills needed to become employable.

Table 4.11 Model Summary for the extent to which Automobile Technology Education Graduates possess the ICT-based skills needed to become employable in Niger State.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.620ᵃ	.384	.376	.75149

a. Predictors: (Constant), training suggested as a result of the strategies needed to enhance the employability of Automobile Technology Education Graduates in Niger State.

Based on the Model Summary table provided, there is a moderate positive statistical relationship between the mean response of Computer Science lecturers and Automobile Technology lecturers on the extent to which Automobile Technology Education Graduates possess the ICT-based skills needed to become employable.

The "R" value in the table indicates the correlation coefficient between the predictor variable (i.e., training suggested as a result of the strategies needed to enhance the employability of Automobile Technology Education Graduates in Niger State) and the dependent variable (i.e., extent to which Automobile Technology Education Graduates possess ICT-based skills). In this case, the correlation coefficient is 0.620, which indicates a moderate positive correlation between the two variables.

The "R Square" value indicates the proportion of variance in the dependent variable that can be explained by the predictor variable. In this case, the R Square value is 0.384, which means that 38.4% of the variance in the extent to which Automobile Technology Education Graduates possess ICT-based skills can be explained by the suggested training strategies.

The "Adjusted R Square" value takes into account the number of predictors in the model and adjusts the R Square value accordingly. In this case, the Adjusted R Square value is 0.376, which is slightly lower than the R Square value due to the presence of only one predictor variable.

The "Std. Error of the Estimate" value indicates the average distance between the observed values and the predicted values in the model. In this case, the Std. Error of the Estimate is 0.75149, which means that the predicted values are, on average, about 0.75 units away from the observed values.

Table 12 ANOVAª

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	45.366	1	45.366	93.873	.000ᵇ
	Residual	34.796	72	.483		
	Total	80.162	73			

a. Dependent Variable: ICT based skills

b. Predictors: (Constant), training suggested as a result of the strategies needed to enhance the employability of Automobile Technology Education Graduates in Niger State.

Based on the ANOVA table provided, there is a statistically significant relationship between the mean response of Computer Science lecturers and Automobile Technology lecturers on the extent to which Automobile Technology Education Graduates possess the ICT-based skills needed to become employable.

The ANOVA table shows the sources of variation in the dependent variable (i.e., extent to which Automobile Technology Education Graduates possess ICT-based skills), as well as the F-test statistic and associated p-value for the regression model.

The "Regression" row shows the sum of squares, degrees of freedom, and mean square for the regression model, which includes the predictor variable (i.e., training suggested as a result of the strategies needed to enhance the employability of Automobile Technology Education Graduates

in Niger State). The sum of squares for the regression model is 45.366, with 1 degree of freedom, and a mean square of 45.366.

The "Residual" row shows the sum of squares, degrees of freedom, and mean square for the residuals, which represent the variability in the dependent variable that is not explained by the predictor variable. The sum of squares for the residuals is 34.796, with 72 degrees of freedom, and a mean square of 0.483.

The "Total" row shows the total sum of squares, degrees of freedom, and mean square for the entire model. The total sum of squares is 80.162, with 73 degrees of freedom, and a mean square of 1.098.

The F-test statistic is calculated as the ratio of the mean square for the regression to the mean square for the residuals. In this case, the F-test statistic is 93.873, which indicates that the mean square for the regression is significantly larger than the mean square for the residuals. The associated p-value is 0.000, which is less than the typical alpha level of 0.05, indicating that the relationship between the mean response of Computer Science lecturers and Automobile Technology lecturers on the extent to which Automobile Technology Education Graduates possess ICT-based skills needed to become employable is statistically significant.

Overall, these results suggest that there is a significant relationship between the suggested training strategies and the extent to which Automobile Technology Education Graduates possess ICT-based skills needed to become employable.

Table 13 Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.

1	(Constant)	.766	.287		2.671	.009
	training suggested as a result of the strategies needed to enhance the employability of Automobile Technology Education Graduates in Niger State.	.730	.075	.752	9.689	.000

a. Dependent Variable: ICT based skills

Table 13 provides information on the regression coefficients for a linear regression model used to examine the relationship between the predictor variable "training suggested as a result of the strategies needed to enhance the employability of Automobile Technology Education Graduates in Niger State" and the dependent variable "ICT based skills" possessed by Automobile Technology Education Graduates in Niger State.

The coefficient of the predictor variable (0.730) indicates that for every one-unit increase in the training suggested by the strategies, the mean response of the ICT-based skills possessed by the graduates increases by 0.730 units, after controlling for the constant term.

The standardized coefficient (beta) of 0.752 suggests that the predictor variable has a relatively strong positive effect on the ICT-based skills of the graduates.

The t-statistic of 9.689 indicates that the coefficient for the predictor variable is statistically significant at the 0.05 level, which means that the relationship between the predictor variable and the dependent variable is not likely to have occurred by chance.

In conclusion, based on the regression analysis, there is a significant positive relationship between the suggested training strategies and the ICT-based skills possessed by Automobile Technology Education Graduates in Niger State.

4.6 Hypothesis 3

H03: There is a statistical relationship in the mean response between Computer science lecturers and Automobile technology lecturers for the strategies needed to enhance the employability of Automobile Technology Education Graduates in Niger State.

Table 4.14 Model Summary for the strategies needed to enhance the employability of Automobile Technology Education Graduates in Niger State.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.620ᵃ	.384	.376	.75149

a. Predictors: (Constant), training suggested as a result of the strategies needed to enhance the employability of Automobile Technology Education Graduates in Niger State.

The table shows the results of a linear regression analysis conducted to examine the relationship between the predictor variable "training suggested as a result of the strategies needed to enhance the employability of Automobile Technology Education Graduates in Niger State" and the dependent variable "strategies needed to enhance the employability of Automobile Technology Education Graduates in Niger State." The R square value of 0.384 indicates that about 38.4% of the variation in the dependent variable can be explained by the predictor variable. The adjusted R square value of 0.376 suggests that the model is a reasonably good fit for the data. The standard error of the estimate of 0.75149 indicates that the actual values of the dependent variable are, on average, approximately 0.75 units away from the predicted values. Overall, the results suggest that there is a moderate positive relationship between the predictor variable and the dependent variable. In other words, the more training is suggested to enhance the employability of Automobile Technology Education Graduates in Niger State, the more likely it is that effective strategies will be implemented to enhance their employability.

Table 15 ANOVAª

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	45.366	1	45.366	93.873	.000ᵇ
	Residual	34.796	72	.483		
	Total	80.162	73			

a. Dependent Variable: ICT based skills

b. Predictors: (Constant), training suggested as a result of the strategies needed to enhance the employability of Automobile Technology Education Graduates in Niger State.

The ANOVA table provided indicates that there is a significant relationship between the strategies suggested to enhance the employability of Automobile Technology Education Graduates in Niger State and the ICT based skills of the graduates. The mean response of the ICT based skills is affected by the strategies suggested to enhance the employability of Automobile Technology Education Graduates in Niger State.

The table shows that the Regression Sum of Squares is 45.366, which indicates that the regression model is explaining a significant portion of the variance in the ICT based skills of graduates. The significant F-value of 93.873 (with a corresponding p-value of .000) indicates that the regression model is a good fit for the data and that the strategies suggested to enhance the employability of Automobile Technology Education Graduates in Niger State are significantly related to the ICT based skills of the graduates.

In summary, the statistical relationship between the mean response of ICT based skills of Automobile Technology Education Graduates in Niger State and the strategies suggested to enhance their employability is significant, according to the ANOVA table. This implies that the strategies suggested have a significant impact on the graduates' ICT-based skills.

Table 16 Coefficientsª

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	.766	.287		2.671	.009
training suggested as a result of the strategies needed to enhance the employability of Automobile Technology Education Graduates in Niger State.	.730	.075	.752	9.689	.000

a. Dependent Variable: ICT based skills

The table shows the coefficients for the linear regression model used to assess the relationship between the strategies needed to enhance the employability of Automobile Technology Education Graduates in Niger State and the ICT-based skills of the graduates, as rated by both Computer Science lecturers and Automobile Technology lecturers.

The unstandardized coefficient (B) for the predictor variable "training suggested as a result of the strategies needed to enhance the employability of Automobile Technology Education Graduates in Niger State" is 0.730. This indicates that, on average, for every unit increase in the suggested training strategies, there is an associated increase of 0.730 units in the graduates' ICT-based skills.

The standardized coefficient (Beta) of 0.752 indicates that the predictor variable has a strong positive effect on the ICT-based skills of the graduates, as rated by both Computer Science and Automobile Technology lecturers.

4.7 Findings of the study

1. The study revealed that the ICT based skills suggested by the researcher are highly to enhance employability among Automobile technology graduates in Niger state.

2. The study revealed that the training rendered to Automobile technology graduates in Niger state have not been effective enough.

3. Finally, the study revealed that the strategies suggested by researcher to enhance the employability of Automobile technology graduates in Niger state will be highly effective.

CHAPTER FIVE

SUMMARY OF FINDING, CONCLUSION AND RECOMMENDATION

4.5 Summary of the study

This study assesses the survey of the information and communication technology skills needed to enhance employability of automobile technology education graduates in Niger State. The specific objective of the study sought to:

1. To identity the ICT-based skills that automobile technology education graduates in Niger State need to enhance their employability.

2. To assess the extent to which automobile technology education graduates possess the ICT-based skills needed to become employable.

3. To develop strategies to enhance the employability of automobile technology education graduates in Niger State through the acquisition of ICT-based skills.

In order to achieve these objectives three research questions and three hypotheses guided the study. The research questions were formulated to achieve the study on what ICT-based skills do automobile technology education graduates in Niger State need to enhance their employability, to what extent do automobile technology education graduates possesses the ICT-based skills needed to become employable, and the strategies needed to enhance the employability of automobile technology education graduate in the job market in Niger State through the acquisition of ICT-based skills. Research questions were answered using mean and standard deviation. A mean of 2.50 is set for data reporting. Any question item with mean 2.50 and above is regarded accepted while below 2.50 is rejected whereas the three formulated hypotheses were tested using t-test analysis.

Descriptive survey design was adopted for the study. Sample size for the study was 115 respondents comprising of 75 computer science lecturers and 40 automobile technology lecturers. Instrument for data collection was a questionnaire titled the survey of the information and communication technology skills needed to enhance employability of automobile technology education graduates in Niger State, the questionnaire was based on 4-point rating scale. According to the data collected from the respondent, it evident that the following ICT-based skills are highly needed by Automobile Technology Graduates in Niger State.

The results suggest that the suggested training strategies have a significant effect on the ICT-based skills required by Automobile Technology students to enhance their employability in the labor market. The results also shows that the previous training employed to train the students were not as effective as it should. Finally, the suggested strategies needed to train the students were highly recommended by the respondents.

5.2   Implication of the study

This study has implication on both automobile technology lecturers and further researchers. The automobile technology lecturers involved in survey of the information and communication technology skills needed to enhance employability of automobile technology education graduates in Niger State can use this research as a guideline to know the ICT-based skills do automobile technology education graduates in Niger State need to enhance their employability, to know the extent do automobile technology education graduates possess the ICT-based skills needed to become employable and the strategies needed to enhance the employability of automobile

technology education graduates in the job market in Niger state through the acquisition of ICT-based skills. Moreover, the automobile technology lecturers can be more informed about direct and indirect strategies. Hence this gives the automobile technology lecturers opportunity to develop interest in the process, thereby this can improve the employability of automobile technology implemented. Future researcher can use the ICT-based skills and strategies needed to enhance the employability of automobile technology graduates in the job market. This study will be contribution to the limited body of knowledge on survey field and can further open more doors for new areas to investigate.

5.3   Contribution of Knowledge

1. The findings will contribute to automobile technology as the study will generate an extent of strategies of the automobile technology education graduates possess the ICT-based skills needed to become employable that can be used as a benchmark to control the existing and future sites.

2. Apart from this research being useful to the field professionals, this study will be valuable for the academicians too. As this study will serve as a support of what about survey of the information and communication technology based-skills needed.

5.4 Conclusion

Based on the findings of the study which where empirically evaluated this study therefore conclude that the survey of automobile industry have a lot of strategies derive as a result of employability of automobile technology education graduates in the job market. Infact the future prospect of automobile technology education implementation by the survey is encouraging as most

organization are genially motivated to adopt employability of automobile education due to its strategic needed to provide improve by enhancing the employability of automobile technology education graduates by providing a valuable insights for policymakers, educators and industry stakeholders, who can use the findings to improve the quality of education and training programs and address the skills gap in the automobile industry.

In conclusion, the survey of information and communication technology-based skills needed to enhance employability of automobile technology education graduates has revealed important insights. The study highlights the increasing importance of ICT skills in today's workforce, particularly in the automobile industry. The findings suggest that automobile technology education graduates must be equipped with a wide range of technical and soft skills, including programming, data analysis, communication, and collaboration.

Furthermore, the survey emphasizes the need for educational institutions to update their curricula and incorporate more ICT-based courses that align with industry demands. It also underscores the importance of training and development programs that can help bridge the skills gap and ensure that graduates are prepared to meet the requirements of the job market.

5.5 Recommendation

The following recommendation were made for the implementation based on the findings of this study;

1. Update the Curriculum: Educational institutions must update their curricula to incorporate more ICT-based courses that align with industry demands. This can be done by conducting regular industry surveys to determine the skills in demand and adapting the curriculum accordingly.

2. Enhance Technical Skills: Graduates must be equipped with a wide range of technical skills, including programming, data analysis, computer-aided design (CAD), and computer-aided manufacturing (CAM).

3. Develop Soft Skills: Graduates should also possess soft skills such as communication, teamwork, leadership, and problem-solving. These skills are essential for success in any industry and can be developed through project-based learning, internships, and other experiential learning opportunities.

4. Offer Training and Development Programs: Educational institutions, industry stakeholders, and government agencies must provide training and development programs that can help bridge the skills gap and ensure that graduates are prepared to meet the requirements of the job market. These programs can include workshops, seminars, and online training.

5. Collaboration: Educational institutions should collaborate with industry stakeholders to identify the skills in demand and tailor the curriculum accordingly. This will help ensure that graduates are better equipped to meet the needs of the industry and enhance their employability.

In conclusion, implementing these recommendations can enhance the employability of automobile technology education graduates and equip them with the necessary skills to succeed in the rapidly evolving automotive industry.

5.6 Suggestion for the further study

The following areas for the further study were also suggested;

1. One suggestion for further study is to explore the impact of ICT skills on the career advancement of automobile technology education graduates. This study can investigate how possessing ICT skills can help graduates secure higher-level positions and advance their careers in the industry. It can also examine how possessing these skills can lead to higher salaries and better job security.

2. Another suggestion is to conduct a longitudinal study to examine the long-term impact of ICT-based education on the employability of automobile technology education graduates. This study can follow graduates over an extended period, tracking their career progression and examining how possessing ICT skills impacts their employability over time.

3. Finally, it would be valuable to explore the perceptions of industry stakeholders on the importance of ICT skills for employability in the automobile industry. This study can investigate how industry leaders view the role of ICT skills in the industry and whether they believe graduates possess the necessary skills to succeed in the workforce. It can also examine how industry stakeholders can collaborate with educational institutions to better prepare graduates for the job market.

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QUESTIONNAIRE

FEDERAL UNIVERSITY OF TECHNOLOGY MINNA, NIGER STATE

SCHOOL OF SCIENCE AND TECHNOLOGY EDUCATION

DEPARTMENT OF INDUSTRIAL AND TECHNOLOGY EDUCATION

A QUESTIONNAIRE FOR GRADUATING STUDENTS, AND ICT SKILLED EXPERTS/TECHNICIANS ON INFORMATION AND COMMUNICATION TECHNOLOGY-BASED SKILLS NEEDED TO ENHANCE EMPLOYABILITY OF AUTOMOBILE TECHNOLOGY EDUCATION GRADUATES IN NIGER STATE.

INTRODUCTION: Please kindly complete this questionnaire by ticking the column that best present your perception about the topic. The questionnaire is for research purpose and your view will be confidentially and strictly treated in response to the purpose of the research work.

SECTION A

PERSONAL DATA

Computer science lecturers; ☐

Automobile technology lecturers; ☐

Note: A four (4) point scale is used to indicate your opinion, tick the options which best describe your agreement as shown below:

Highly needed   (HN)   =   4 points

Needed   (N)   =   3 points

Moderately Needed   (MN)   =   2 points

Not needed   (NN)   =   1 point.

SECTION B

What ICT-based skills do Automobile Technology Education Graduates in Niger State need to enhance their employability?

S/N	Items	HN	N	MN	NN
1	Ability to use Automotive diagnostic technology is used in the to detect and diagnose any technical problems in vehicles.				
2	Ability to interpret and analyze data from diagnostic tools.				
3	Have experience in the use of specialized software for the analysis of automobile performance.				
4	Knowing how to configure, manage, and troubleshoot automotive networks automobile.				
5	Ability to use Computer-aided design (CAD) for designing automobile components or the creation of detailed models of vehicles and components.				
6	Ability to troubleshoot and repair computer systems related to automotive technology.				
7	Ability to troubleshoot and diagnose automotive issues with various diagnostic tool.				
8	The ability to program and debug automotive software such as ECUs and embedded systems.				
9	Familiarity with the use of hardware and software technologies used in the automotive industry				
10	Ability and understanding of Automotive Safety Standards and awareness of various safety standards for automotive systems and how to properly test and inspect vehicles for compliance.				
11	The ability to use specific tools to calibrate vehicles to their original settings or to adjust settings to meet new requirements.				
12	Familiarity with the use of computer-controlled systems for the purpose of controlling vehicles and simulation.				
13	Familiarity with the concepts of vehicle electronics, including the use of sensors, actuators, and controllers.				

S/N	Skill Items			
14	Skilled in the use of specialized software for the analysis and optimization of vehicle performance.			
15	Experienced in the use of combustion engine technologies.			
16	Ability to understand cyber security threats and countermeasures in order to protect vehicles and their data.			

SECTION C

To what extent do Automobile Technology Education graduates possess the ICT-based skills needed to become employable?

S/N	Skill Items	SA	A	D	SD
1	Students Have access to ICT-based training resources.				
2	Students are satisfied with the ICT-based skills training offered in Automobile Technology Education courses in Niger State.				
3	ICT-based skills training has been relevant to Automobile Technology Education courses.				
4	ICT-based skills training resources have been engaging and interactive.				
5	Students are satisfied with the quality of ICT-based training.				
6	ICT-based training materials are regularly monitored for accuracy and quality.				
7	ICT-based training resources are easy to use and understand.				
8	The instructors are knowledgeable and competent.				
9	ICT-based training resources available in multiple languages.				
10	ICT-based training resources accessible and convenient.				
11	ICT-based training materials are easy to access and use.				
12	ICT-based training sessions are graded and evaluated properly.				
13	ICT-based training are affordable and within budget.				

14	ICT-based training resources are regularly updated and improved.				

SECTION D

What are the strategies needed to enhance the employability of Automobile Technology Education

Graduates in the job market in Niger State through the acquisition of ICT-based skills?

S/N	Skill Items	SA	A	D	SD
1	Ensure that the curriculum is up-to-date and relevant to the automotive industry.				
2	Provide students with access to the latest ICT technologies and resources.				
3	Develop a mentorship program to help students develop their ICT skills.				
4	Offer internships or apprenticeships that allow students to gain first-hand experience with ICT-based technologies.				
5	Offer ICT-based training and development opportunities that help develop and enhance the ICT skills of graduates.				
6	Ensure that all ICT-based courses are properly certified and accredited.				
7	Develop and maintain relationships with ICT-based vendors and partners.				
8	Provide students with access to job boards and career resources.				
9	Offer job-shadowing opportunities to help students understand the day-to-day operations of the automotive industry.				
10	Offer advice and guidance on the best ways to use ICT technologies in the automotive industry.				
11	Utilize ICT-based simulations and virtual reality training to help students gain hands-on experience with ICT.				

12	Allow students to participate in hackathons and other ICT-based competitions.				
13	Offer courses and seminars that focus on the ethical use of ICT technologies.				
14	Develop relationships with universities and colleges that offer ICT-based courses.				