

THE EMPLOYABILITY COMPETENCIES NEEDED BY AUTOMOBILE ELECTRICAL SYSTEMS' TECHNICIANS IN NIGER STATE, NIGERIA

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Abstract

This study was carried out to identify the employability competencies needed by automobile Electrical Systems' Technicians. Specifically, this study determined:- the general employability competencies and the most important by ranking. Two research questions and one null hypothesis was formulated and tested at 0.05 level of significant to guide the study. The descriptive survey design was used and the population for this study was made up of automobile technicians, automobile/electrical and electronics teachers and automobile/electrical and electronics lecturers, within the selected areas in Niger State. A structured questionnaire was used for data collection. The data collected was analyzed using frequency count, mean and analysis of variance (ANOVA). The findings revealed that all the employability skills listed are needed but integrity/honesty and consciousness, ranked higher while critical and self critical abilities and taking reasonable job related risks, ranked lowest. It was recommended that, developing graduate employability skills and attributes should be included in school curriculum and Employers, educators and trainers should consider working together to reintegrate employability skills development into the entire learning system.

Introduction

An automobile electrical system starts and operates the engine, monitors and controls many aspects of the vehicle's operation, and powers such components as headlights and radios. Today, electronic is a major part of the modern automobile. The automobile electrical systems are getting more and more intricate, and the need for

professional care is becoming imperative. In addition to these fundamental systems, numerous auxiliary electrical systems are now fitted to provide safety and comfort aids for the driver and passengers of the vehicle. The battery, which is the electrical source when the engine is not running, is connected to a number of separate circuits such as the charging, starting, ignition fuel

injection engine management, lighting and the auxiliary circuit (Hillier and Rogers, 2007).

The electrical and electronic systems of the motor vehicle are often the most feared, but at the same time can be the most fascinating aspects of an automobile. The complex circuits and systems now in use have developed in a very interesting way (Tom, 2004). When any of problems is experienced, consultation at an automobile electrical system technicians is required for repairs. Automobile electrical system technicians are set of technicians who use a wide range of tools to adjust, test, diagnose, service and completely repair any fault on the motor vehicle for safe and reliable operation according to the manufacturer's specification. In small shops, they may work on a wide variety of repair jobs while in larger workshops, they may specialize in repairing, rebuilding and servicing the electrical section of the motor vehicle. Automobile electrical system technicians begins a job by reading the work order and examining a motor vehicle to locate the cause of faulty operation and determine the appropriate repair using their sight, sound, feel and smell (Reinhard, 2003).

For an automobile electrical system technicians to be competent at work, he/ she needs some

required skills. Skills can be define as the ability to do something well, usually gained through training or experience. Most young people leave school without the knowledge or foundation required to find and retain a good job. Employers are not only looking for graduates with technical knowledge but also those with employability skills or those attributes of employees other than technical competence that makes them assets to the employer. Employability competencies are the knowledge, skills abilities, behaviors and other characteristics that an individual's needs to perform work roles or occupational functions successfully.

Employability competencies includes; communication, writing, computer, research, self-management, adaptability/flexibility, time management, team work, decision making, critical thinking abilities, leadership, initiative and enterprise, integrity/honesty and ethical commitment skills among others. In today's economic, knowledge of information and communication, customer service and relation, innovation and high performance which formed employability skills are of premium.

Employability skills are defined as skills required not only to gain employment, but also to progress within an enterprise so as to achieve one's potential and

contribute successfully to enterprise strategic directions. Employability skill is a non-technical ability and is part of the work skills which is as important as technical skill and should be acquired by everybody in the industrial field. Industrial employers agreed that employability skill is important to be acquired by their employees to be outstanding in their field (Lees, 2002). He also discovered that technical graduates have mastered their technical skill but employers feel dissatisfied of their employees because they lack motivational skills, communication skills, interpersonal skills, critical thinking skills problem-solving skills and entrepreneurship skills. Employability skills are enabling skills, which are competencies allowing an individual to do things right and play a significant part in a working environment (Commonwealth of Australia, 2006). Due to the impact of globalization, knowledge economy, industry upgrade, and rapid change in workforces, college graduates today need to possess the employability skills so that they can meet today's complex workplace demands; and they should be able to demonstrate these skills prior to their graduation.

The Employability Skills Framework specifies eight skill groupings to describe and define

employability skill, according to Commonwealth of Australia (2006): Communication skills: to convey and receive messages and information clearly and unambiguously without causing misunderstanding, and to contribute to productive and harmonious relations between employees and customers; Team work skills: to work with diverse people cooperatively as a team in order to resolve problems and accomplish the set goals and to contribute to productive working relationships and outcomes; Teamwork recognises the importance of relationships with others in the workplace. There are very few tasks and roles which occur in isolation, but even these require at least some degree of relationship with customers and/or supervisors or an understanding of how the work being done contributes to an overall goal or target. Problem-solving skills: to think reflectively and find answers to problems in real cross-disciplinary situations and to contribute to productive outcomes; Initiative and enterprise skills: to be creative and generate innovative solutions to make contribution to the workplace and be able to translate ideas into action and that contribute to innovative outcomes; Planning and organizing skill: to well manage time and priorities; to take initiative and make decisions; to collect, analyze,

and evaluate information skills that contribute to long-term and short-term strategic planning; Self-management skills: to be able to evaluate and monitor own performance, take responsibility, and express own ideas and vision and to well manage time and priorities; to take initiative and make decisions; to collect, analyze, and evaluate information that contribute to employee satisfaction and growth; It also refers to an individual's ability to manage themselves in relation to the outcomes expected of their work role. Individuals must increasingly take responsibility for their own performance. Learning skills: to be able to open to new ideas and change, learn via a range of mediums and apply learning to technical issues and operations and to contribute to ongoing improvement and expansion in employee and company operations and outcomes; and Technology skills: to possess IT skills, operate equipment, and apply IT as a management tool that contribute to effective execution of tasks.

Employers frequently comment on the need for their employees to possess abilities other than those relating to the academic or technical knowledge of the discipline. They placed high value on finding good workers that possess both managerial and entrepreneurial skills. Clanchy and Ballard (1995)

observed that employability skills are usually not formally taught as part of the engineering and technology education curriculum content and students usually graduates without necessary employability skills. To overcome these phenomena, institutions and employers need to have common understanding of which skills should be possessed by automobile electrical system graduates. Hence the study identifies the employability competencies needed by automobile electrical system technicians.

Purpose of the Study

The purpose of the study is to identify the employability competencies needed by automobile electrical systems' technicians. Specifically, this study identified the:

1. The general employability competencies needed by automobile electrical systems' technicians.
2. The employability competencies have been considered as most important to automobile electrical systems' technicians.

Research questions

The study provides answers to the following questions:-

1. What are the general employability competencies needed by automobile electrical systems' technicians?

2. Which of employability competencies have been considered as most important to automobile electrical systems' technicians?

Hypothesis

The following null hypothesis was formulated to guide the study and tested at 0.05 level of significance.

Ho₁ There is no significance difference between the mean responses of automobile technicians, automobile teachers and automobile lecturers on the general employability competencies by automobile electrical system's technician.

Methodology

In carrying out this study, the descriptive survey approach was used. The descriptive survey design was considered suitable since the study sought information from a sample that was drawn from a population using a questionnaire. The study was conducted in some selected industries and schools in Niger State. The population for this study was 136. This is made up of 47 automobile technicians, 30 automobile/electrical and electronic teachers and 59 automobile/electrical and electronic lecturers, within the selected area in Niger

State (Niger State Ministry of Commerce and Industries and Science and Technical School Board). A simple random sampling was employed in the selection of the sample for the study. The sample of the study is 89 drawn from the population. Reliability coefficient of 0.83 was used for the study. The questionnaire was made up of thirty-six items.

The analysis of data for the research questions and hypothesis were accomplished using the frequency count, mean and analysis of variance (ANOVA). The mean was used to determine the degree of acceptance or not acceptance in research questions, while analysis of variance (ANOVA) was used to test the hypothesis. A four point scale was used for the study. The mean of 2.00 was used as decision point for research question. Consequently, any item with mean responses of 2.00 and above was considered to be needed. Any item with a mean response of 1.99 and below was equally considered not needed and the highest mean was ranked 1st follow by 2nd in that manner. Also in analysis of variance (ANOVA) test was used to test the hypothesis at 0.05 level of significant to compare the mean response of the groups. A F-ratio of 3.26, 3.35 and 3.62 were selected based on the degree of freedom at 0.05 level of significant.

Therefore, any item with analysis of variance (ANOVA) calculated value less than the critical was regarded as not significant. While any item with calculated value equal or greater than the critical was regarded as significant.

Research Question 1 and 2

What are the general employability competencies needed by automobile technicians for automobile electrical system? And

Which of employability competencies have been considered as most important to automobile electrical systems' technicians?

Table 1

Mean and Ranks of General Employability Skills Needed by Automobile Electrical Systems' Technicians System.

		$N_1 = 40, N_2 = 26, N_3 = 23$					
S/NO	ITEMS	\bar{X}_1	\bar{X}_2	\bar{X}_3	\bar{X}_t	Remark	Ranks
1.	Communicating verbally to groups and peers.	2.56	2.38	2.65	2.53	Needed	19th
2.	Making impromptu presentation.	2.38	2.04	2.57	2.33	Needed	24th
3.	Ability to write report	2.44	2.85	2.65	2.65	Needed	10th
4.	Written communication skill	2.25	2.58	2.78	2.54	Needed	18th
5.	Establishing good rapport with subordinate	2.58	2.78	2.67	2.68	Needed	8th
6.	Computer skill	2.83	2.88	2.70	2.80	Needed	4th
7.	Research skill	2.43	2.65	2.39	2.49	Needed	20th
8.	Conflict management	2.74	2.42	2.57	2.58	Needed	16th
9.	Identifying problems.	2.73	2.58	2.68	2.66	Needed	9th
10.	Prioritizing problems.	2.40	2.26	2.35	2.34	Needed	23rd
11.	Analyzing problems	2.78	2.76	2.57	2.70	Needed	7th
12.	Leadership	2.71	2.44	2.30	2.48	Needed	21st
13.	Ethical commitment	2.68	2.51	2.61	2.60	Needed	14th

14. Decision making	2.86	2.70	2.80	2.45	Needed	22nd
15. Critical and self critical abilities	2.75	2.62	2.65	2.31	Needed	25th
16. Assigning/ delegating responsibility.	2.65	2.65	2.57	2.62	Needed	12th
17. Creativity	2.85	2.78	2.80	2.81	Needed	3rd
18. Time management	2.63	2.73	2.40	2.59	Needed	15th
19. Team work	2.55	2.64	2.50	2.56	Needed	17th
20. Initiative and enterprise	2.74	2.69	2.79	2.74	Needed	5th
21. Taking reasonable job related risks.	2.13	2.24	2.41	2.26	Needed	26th
22. Self- management.	2.75	2.77	2.65	2.72	Needed	6th
23. Integrity/ honesty.	2.95	2.96	2.77	2.89	Needed	1st
24. Consciousness.	2.85	2.81	2.86	2.84	Needed	2nd
25. Human & material management	2.49	2.80	2.59	2.63	Needed	11th
26. Adaptability/ flexibility.	2.48	2.81	2.54	2.61	Needed	13th

Key: N_1 = Automobile Technicians, N_2 = Automobile Teachers, N_3 = Automobile Lecturers, \bar{X}_1 = Mean of response of Automobile Technicians, \bar{X}_2 = Mean of response of Automobile Teachers, \bar{X}_3 = Mean of response of Automobile Lecturers, \bar{X}_t = Average mean of responses of Automobile Electrical Systems' Technician in General Employability Competencies.

The analysis of mean responses of the three groups of respondents from Table 1 revealed that the items under this sub-heading are rated as needed with mean score ranging between 2.26- 2.89 respectively. This signifies that the employability competencies are needed by Automobile Electrical Systems' Technicians. In the ranking of employability competencies, Integrity/ honesty is ranked highest while taking reasonable job related

risks is ranked least by the respondents. This signified that integrity/ honest should be inculcate in would be technicians.

Hypothesis One

H_{01} : There is no statistical significance difference between the mean responses of Automobile Technicians, Automobile Teachers and Automobile Lecturers on General Employability

Competencies Needed by Technicians System. Automobile Electrical Systems'

Table 2

One- way Analysis of Variance of the mean responses of the respondents on the General Employability Competencies Needed by Automobile Electrical Systems' Technicians System.

Sources of variation	Df	Sum of Squares	Mean Sum of Squares	f- cal	f- critical	Significance	Decision
Between groups	2	0.00001569	0.000007845	0.00001456	3.62	NS	Accepted
Within groups	114	6.14	0.05385				
Total	116	6.14001569					

The hypothesis shows the f-calculated in Table 2 which is 0.00001456. Since the calculated f-ratio is below the f- critical of 3.62, the stated null hypothesis is accepted at 0.05 level of significant meaning there is no statistical significant difference in the mean responses of Automobile Technicians, Automobile/ Electrical and Electronic Teachers and Automobile/ Electrical and Electronic Lecturers on General Employability Competencies for Automobile Body Electrical System.

Findings

The following are the findings of the study, based on the data collected and analyzed; they are highlighted based on the research

questions posed on the study by the hypothesis.

The findings revealed that all the employability skills listed are needed for good performance of Automobile Electrical Systems' Technicians System, but in the raking some have higher ranking while some low ranking.

The competencies ranked from 1st to 4th are:

1. Integrity/honesty
2. Consciousness
3. Creativity
4. Computer skill

The competencies ranked from 22nd to 26th are:

1. Prioritizing problems.
2. Making impromptu presentation.

3. Critical and self critical abilities
4. Taking reasonable job related risks.

Discussion of Findings

The discussion of findings are based on the research questions posed for the study and the hypothesis: Employers seek candidates who have are of good character that is integrity/honesty, because the employee of integrity/honest will generally contribute positively to the growth of industries or organization. Such people will ensure that good work is done and ensuring good management of financial resources. Having a sound academic base in regard to speaking, reading, listening and writing is a plus and help in communication with customers. Conscious skills are important to carry out duty especially production works and works which involve technological tools. According to De Leon and Borchers (1998), employers valued computer skills as one of the most important skill especially where the skill was not provided by employers yet it is strictly required in the occupations. On the other hand, Mitchell (2001) stated that 80.6% of employers pointed out that they needed workers with computer skills will be to do well especially as the vehicle are going electronics.

When it comes to the thinking skills, the study revealed that employers seek candidates who have the ability of seeing things in the mind's eyes, ability to make sound decisions, creative thinking. Reasoning is truly significant to make quick decisions logically or to interpret certain operational situations and draw appropriate conclusions. The conclusions drawn should be based on thinking as well as other related considerations. Logical thinking is based on knowledge gained from experience and other reading materials and it empowers one to diagnose a given operational situation and draw desirable decisions.

Team work and leadership are abilities which are very important in any occupation if one want to progress or becomes self-employed. This is because, Zirkle (1998) observed that most vocational instructors stated that leadership skill is very important in schools curricula development as it prepares the graduates for employability. Besides, Gabriel (2000) mentioned that 16% of employers stated that the ability to lead is also very important, 29% said that it is important, and 41% said it is quite important to practice it in professions. Adaptability/flexibility is needed as a employability competence for Auto mechanic

electrical system technicians as the ability to adapt in the working environment is a essential in occupations especially in industry as it involves many employees. Clarke (1997) clarified that employers need flexible workers who are able to face any challenges in workplace besides able to motivate themselves to get through those challenges. While initiative has been identified as an important facet within problem solving, it has also been included as an important skill in its own right. The inclusion of initiative and enterprise on its own reflects the importance many employers place on employees determining how to best achieve work-related outcomes without close and detailed supervision. Work-places with tighter control mechanisms may place a lower emphasis on initiative and may be characterised by a limited number of facets or, in some extreme cases, by the absence of these facets (Commonwealth of Australia 2006). The ability to give constructive feedback to others involves explaining the concept, risks and benefit to non- automobile electrical technicians as well as the ability to clearly explain a project scope, plan and expected cost and revenue as essential in any business (Kingfisher, 2004).

The research findings also revealed that resource capability skill

which includes time management, human and material resources management and risk taken. This was corroborated by Williams and Heins (1971). They define risk as the variation in the possible outcomes that exists in nature. Because the future is uncertain, what we expect to happen may not turn to be correct. Risk is ever present in all human affairs, be they economic, political, social or personal. Human activities are full of risk and uncertainty. The fact that the future cannot be predicted with certainty underlies the pervasiveness of risk.

Conclusion

Based on the findings of the study, it was analyzed that there is the need for Automobile Technicians to be well equipped with employability competencies by means of proper teaching methods as they will be well prepared and fit to work in any automobile and related industry. In effect, the results of this study will provide answers to employability competency problems needed by Automobile Electrical Systems' Technicians in other to become more competent as employee and self-employer.

Recommendations

Based on the findings the following recommendations were made:

1. Developing graduate employability skills and attributes should be included in school curriculum. Universities need to promote employability skills and attributes in their mission statements, learning and teaching strategies, course framework, strategic documents and practical guidance.
2. The lecturers should ensure that they teach employability skills to their students as it is needed by Automobile Electrical Systems' Technicians. By using different methods of teaching.
3. Employers, educators and trainers should consider working together to reintegrate employability skills development into the entire learning system, including the public education system, private and government workplaces and the home.
4. Technical teacher education programmes could offer the tools and resources needed to increase effectiveness levels of teaching employability skills.

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