



ELECTRICAL ENGINEERS' PERCEPTION OF COMPETENCIES NEEDS OF ELECTRICITY DISTRIBUTION COMPANY STAFF FOR ENHANCING QUALITY POWER SUPPLY IN BENUE STATE

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Abstract

This study sought the perception of electrical engineers on the competencies needs of electricity distribution companies' staff for enhancing quality power supply in Benue state. Two research purposes and two research questions guided the study. Descriptive survey design was adopted for the study. The population for the study was 58 Electrical engineers. A structured questionnaire titled Competencies Needs of Electricity Distribution Companies' Staff (CNEDCS) questionnaire which was index on a 4-point rating scale was used as instrument for data collection. The questionnaire was face validated by three lecturers in the department of electrical engineering, University of Agriculture Makurdi, Benue State. The reliability coefficient of the instrument was through Cronbach alpha reliability technique and was found to be 0.85. The instrument was administered by the researchers through direct contact. The research questions were answered using mean and standard deviation while t-test was used to test the null hypotheses at 0.05 level of significance. Findings from the study shows that electricity distribution companies' staff need management and technical competencies to a high extent to enhance quality power supply. It was therefore recommended that Electricity distribution companies in Nigeria should endeavour to recruit staff with high technical skills and should engage their staff in staff training programmes.

Key words: Engineers', Perception, Competencies, Enhancing, Power supply.

INTRODUCTION

It is not an overstatement to say that electricity supply contributed largely in making the world what it is today. Its importance to the masses and industries cannot be overemphasized. The use of electric irons, televisions, radios, washing machines, refrigerators, video players, cookers, computers, fans, air-conditioners, among others is made possible through electricity supply. In other words, any nation without electricity supply is like a car without fuel, it will remain stagnant. Adedokun (2004) in his study revealed that there is a strong link between energy and wealth. Similarly, Sanusi and Bisiriyu (2007) posited that electricity supply drives industrialization. Also, Ekpo, Chuku and Effiong (2011) revealed in his study on electricity that lack of access to electricity inflate production cost and make competition in the global market difficult for developing countries. The power sector of Nigeria is however; marked by its erratic nature, frequent interruption, total blackout, insufficient power supply, among others. Emeka, (2008) identified several causes of inadequate power supply and argued that this precarious situation has serious negative implications for the operations of industrial sector in the country, as most organization spent fortunes generating their own power and that this situation represents a major setback on the country's quest for industrial development. In



most locations in Nigeria, the distribution network is poor, the voltage profile is bad and the billing is inaccurate. As the department, which inter-faces with the public, the need to ensure adequate network coverage and provision of quality power supply in addition to efficient marketing and customer service delivery cannot be over emphasize (Sambo, Garaba, Zarma & Gaji, 2009). Sambo et al further highlighted some of the major problems associated with electricity distribution in Nigeria to include but not limited to weak and inadequate network coverage; overloaded transformers and bad feeder pillars; substandard distribution lines; poor billing system; unwholesome practices by staff and very poor customer relations, low staff morale and lack of regular training and incompetency of management staff among others. Due to the lack of reliable electricity, many people and companies supplement the electricity provided by the grid system with their own generators. According to Adedokun (2004) the electricity from private generators is more expensive than that from the national powered grid, thus raising the price of domestic goods. Adedokun strongly argued that for Nigeria to jump and accelerate the pace of economic growth and development, the country should fix power supply problem. Abdulrahman, Oluwafemi and Olakunle (2013) argued that fixing the energy sector is tantamount to shifting the production possibility curve of the country's economy. Some of the problems associated with erratic power supply are traced to the incompetency of electricity distribution company's staff. Competency is the ability to perform a particular task properly (Thoha, 2008). This is supported by Martini, Rahyuda, Sintaasih and Saroyeni (2018) who states that competency is a cluster of related knowledge, skills, abilities that affects a major part of one's job that can be measured against well-accepted standards. Competency, in other words, refers to an individual characteristic that can be measured or counted reliably and that can be shown to differentiate significantly between superior and average performers, or between effective and ineffective performers.

Raven and Stephenson (2001) sees it as a combination of practical and theoretical knowledge, cognitive skills, behavior, and values used to improve performance; or as the state or quality of being adequately or well qualified, having the ability to perform a specific role. Competent employees are therefore, the main resource of any organization in acquiring a competitive advantage. HayGroup (2004) points out that an organization's best source of competitive advantage lies with its employees. The Society for Human Resource Management (2003) has indicated that competencies have become integral in the field of Human Resource Management in work related organisations. Management on the other hand, is the process of working with people and using other organizational resources to achieve organizational objectives effectively using limited resources efficiently in a changing environment (Popoola & Fadare, 2016). It could also be referred to the coordination of all resources through the processes of planning, organizing, influencing, and controlling in order to attain stated objectives (Certo, 2007). Ajanaku (2007) in his studies on power distribution to the industrial sector in Nigeria found that due to poor management, an average daily power outage in the industrial sector increased from 13.3 hours in January 2006 to 14.5 hours in March 2006. In a worsening experience, the outage increased to 16.48 hours per day in June 2006. Ajanaku further reported that power



distribution in the month of June 2006 to the industrial sector, on the average was 7.52 hours per day. The Federal Government of Nigeria in the time past has made some efforts to improve power generations and ensure uninterrupted power supply to the nation. In her drive to achieve the goal of increasing electricity supply, the federal government increased the involvement of foreign participation in the electric power sector through Independent Power Producers (IPPs) to generate electricity and sell it to Power Holding Company of Nigeria (PHCN). In June 2001, there was the commissioning of 270 MW (9 units of 30 MW power plants) by Enron, into the national grid. This was followed in May 2005 by Agip's 450 MW plant located at Kwale in Delta State. The NNPC and its JV Partners- Conoco Phillips and Agip- provided the \$480 million to construct the plant. State governments were also not left out in the commissioning of major power plants to increase power supply, including River State, which contracted Shell Petroleum Development Company (SPDC) to expand the 700MW Afam station. However, beyond generation, administrative policies and procedures are very crucial and important dimensions to good service delivery of the power sector. They require the needed attention for any organization to run an efficient day-to-day operation and to manage and develop its service effectively. It is important to acknowledge the substantial base of successful practice of management and technical services which must be put in place to carry out all the necessary actions as well as operations that will actually fulfill the objective, goals and of distribution companies towards improving the quality of power supply. The demand for effective and competent employees continuously increases in both public and private organizations because a dynamic global marketplace and increasing foreign competition has compelled organizations to become more effective and flexible in response to the rapidly changing environment. As such, this is a suitable time to assess human resource management (HRM) practices that can augment organizational performance in public sector organizations especially the power sector in Nigeria (Gould-Williams, 2003, as cited in Memari, Mahdieh & Marnani, 2013, p.29).). It is a well-known fact that no business can exist without customers (Adrian, 2002). Customer service is of vital importance in any organization and it is the responsibility of management personnel to maintain effective customer service. According to Turban (2002), customer service is a series of activities designed to enhance the level of customer satisfaction. Therefore a competent and competitive workforce is an essential factor if firms are to survive in this rapidly changing environment.

It therefore, becomes imperative for electricity distribution companies to develop programs and process to recruit, motivate and retain employee with capable management and technical abilities. This would increase their performance and in-turn improves the distribution of electricity in the country (Berger & Berger, 2004). Similarly, technical competency is the ability to perform a certain physical or mental task (James, 2013). Technical competency is a basic characteristic of a person consisting of knowledge, skills, and attitudes that are related to one's performance (Sowando, 2002). Technical competency consists of task skill, task management skill, contingency management skill, job role skill, and skill transfer (Ardianto, Effendi, & Santoso, 2015). The technical competency of an employee is able to encourage the improvement of one's commitment to



his work as well as job performance (Sowando, 2002). Specifically, technical competency positively affects the affective commitment of an employee, affects normative commitment and affecting the continual commitment of performance (Obiano, 2006). The technical skills competency possessed by electricity distribution company staff will therefore, enable them prepare themselves for their occupation, organizational success and customers' satisfaction. Electrical engineers and technologist without proper grasp of the technical skills in their area are ineffective because the end result can only be the effective demonstrators of ignorance.

PURPOSE OF THE STUDY

The purpose of this study was to seek electrical engineers' perception of competencies needs of electricity distribution companies' staff for enhancing quality power supply in Benue State. Specifically, the study sought to find out:

1. The opinions of electrical engineer on management competency needs of electricity distribution companies' staff for enhancing quality power supply.
2. The opinions of electrical engineer on technical competency needs of electricity distribution companies' staff for enhancing quality power supply.

Research Questions

1. What are the management competencies needed by electricity distribution companies' staff for enhancing quality power supply?
2. What are the technical competencies needed by electricity distribution companies' staff for enhancing quality power supply?

Hypotheses

Ho₁. There is no significant difference between the mean responses of electrical engineers in academics and those in the field on the management competencies needed by electricity distribution companies' staff for enhancing quality power supply.

Ho₂. There is no significant difference between the mean responses of electrical engineers in academics and those in the field on the technical competencies needed by electricity distribution companies' staff for enhancing quality power supply.

Methodology

Descriptive survey design was adopted for the study. The population for the study was 58 registered electrical engineers in Benue State, which comprised of 31 electrical engineers in industry and 27 electrical engineers in academics. There was no sampling since the population was manageable. A structured questionnaire titled *Competencies Needs of Electricity Distribution Companies' Staff (CNEDCS)* questionnaire which was index on a 4-point rating scale was used as instrument for data collection. The questionnaire was face validated by three lecturers in the Department of Electrical Engineering, University of Agriculture Makurdi. Their inputs gave rise to the modified copy of the questionnaire. To ascertain the reliability of the instrument, a pilot study was conducted on 30 professionals in area of electrical technology in Jalingo local government area of Taraba State. Their responses were subjected to a reliability test using coefficient alpha's



technique. The instrument yielded a reliability coefficient of 0.85. The instrument was administered by the researchers through direct contact. The research questions were answered using mean and standard deviation. Decision to ascertain whether a research questions was needed was based on the mean response value of 2.50 and above. Items with mean response value below 2.50 were regarded as not needed. An inferential parametric statistics of independent samples t-test was used to test the null hypotheses at 0.05 level of significance. p -value and α -value were compared to decide whether a null hypothesis was to be retained or rejected. When $p \leq \alpha$, the null hypothesis was to be rejected and when $p > \alpha$, the null hypothesis was to be retained.

Results

Research question 1: What are the management competencies needed by electricity distribution companies' staff for enhancing quality power supply?

Table 1: Mean and standard deviation scores of Electrical engineers' on the management competencies needed by electricity distribution companies' staff for enhancing quality power supply.

S/No	Item	\bar{X}	SD	Remark
1	Ability to communicate orally and in writing with individuals	2.97	0.73	Needed
2	Ability to maintain records and reports	3.47	0.93	Needed
3	Knowledge of basic mathematical operations and calculations.	2.92	0.97	Needed
4	Ability to appropriately respond to emergency situations	3.11	0.81	Needed
5	Ability to use gadgets like computer, printers, fax, photocopier, e.t.c	3.00	0.84	Needed
6	Knowledge of computer applications.	2.72	2.09	Needed
7	Knowledge of organizational policies and procedures to maintain safety and security of facilities/departments, staff, property,	2.68	0.99	Needed
8	Ability to establish and maintain effective working relationships with others (e.g., employees, vendors, the public)	3.36	1.26	Needed
9	Ability to conduct work in a professional and ethical manner consistent with departmental rules and accepted industry standards.	3.43	0.64	Needed
10	Ability to be objective and flexible in adapting to changes in priorities, work assignments, and other interactions that may impact pre-established courses of	2.94	1.11	Needed



	action for completing projects and assignments.			
11	Ability to work independently on projects or assignments without close supervision or detailed instructions to maximize workplace productivity.	3.00	0.61	Needed
12	Ability to identify customers' needs and respond to them	2.87	0.94	Needed
13	Ability to identify the right tools and materials to be used in different installations and repairs	3.52	0.59	Needed
14	Ability to identify causes and remedies of electrical faults	3.62	0.93	Needed

Result of data presented in Table 1 shows the responses on the management competency needs of electricity distribution companies' staff for enhancing quality power supply. The table revealed that all of the 14 items on management competency have a mean rating that range between 2.72 to 3.62 which is above the decision point of 2.50. This shows that all the management competencies identified were above 2.50 indicating that they are needed by electricity distribution companies' staff.

Research question 2: What are the technical competencies needed by electricity distribution companies' staff for enhancing quality power supply?

Table 2: Mean and standard deviation scores of Electrical engineers' on the technical competency needs of electricity distribution companies' staff for enhancing quality power supply.

S/No	Item	\bar{X}	SD	Remark
1	Knowledge on installation of electrical distribution equipment, systems and components	3.14	0.89	Needed
2	Knowledge on maintenance of electrical distribution equipment	3.14	0.88	Needed
3	Ability to handle and use electrical working tools effectively	3.12	0.87	Needed
4	Ability to make right choice of wiring materials selection	2.80	0.99	Needed
5	Ability to determine current rating of fuses in electrical installation	2.65	1.09	Needed
6	Ability to maintain safety of equipment and human beings	2.77	0.89	Needed



7	Knowledge of the principles and operations of electrical equipment (e.g., wiring, switches, lighting, transformers, switchboards, motor control centers	3.13	0.87	Needed
8	Ability to stand and perform work duties for an extended period of time during installation, maintenance, and repairs.	2.54	1.27	Needed
9	Ability to work at various locations for installation, maintenance, alteration and repair of electrical systems and components.	2.73	0.92	Needed
10	Use safety equipment essential for domestic and industrial installations	3.10	1.25	Needed
11	Ability to install correct circuit breakers and fuses in electrical installation	3.14	0.89	Needed
13	Ability to read and interpret electrical working drawings	3.12	0.87	Needed
14	Identify common sources of hazard in domestic electrical installation	3.10	0.99	Needed

Result of data presented in Table 2 shows the responses on technical competency needs of electricity distribution companies' staff for enhancing quality power supply. The table revealed that all of the 14 items on management competencies have a mean rating that fall above 2.50 which is above the decision point. This shows that all the technical competencies identified above are needed by electricity distribution companies' staff.

Hypotheses

H_{01} . There is no significant difference between the mean responses of electrical engineers in academics and those in the field on the management competency needs of electricity distribution companies' staff for enhancing quality power supply.

Table 3: Independent sample t-test of electrical engineers in academics and those in the field on the management competencies needed by electricity distribution companies' staff for enhancing quality power supply.

Group	N	\bar{X}	SD	t	df	P-value	Remarks
EE in industry	31	29.11	3.93	1.27	56	0.40	No Sig. difference
EE in academics	27	33.67	3.07				

EE = Electrical Engineers, ND = Not Differ, $p > 0.05$, $df = 56$,

Result of data presented in table 3 shows that there is no significant difference between the mean responses of electrical engineers in academics and those in the field on the management competency needs of electricity distribution companies' staff for enhancing quality power supply, $t(56) = 1.27$, $\alpha = 0.05$. This therefore, shows that the null hypothesis (H_{01}) is retained.



H_{o2} . There is no significant difference between the mean responses of electrical engineers in academics and those in the field on the technical competency needs of electricity distribution companies' staff for enhancing quality power supply.

Table 4: Independent sample t-test of electrical engineers in academics and those in the field on the technical competency needs of electricity distribution companies' staff for enhancing quality power supply.

Group	N	\bar{X}	SD	t	df	P-value	Remarks
EE in industry	31	24.32	4.03	1.38	56	0.63	No Sig.
EES in academics	27	31.73	3.69				Diff.

ND = Not Differ, $p > 0.05$, $df = 56$

Result of data presented in table 4 shows that there is no significant difference between the mean responses of electrical engineers in academics and those in the field on the management competency needs of electricity distribution companies' staff for enhancing quality power supply, $t(56) = 1.38$, $\alpha = 0.05$. This therefore, shows that the null hypothesis (H_{o1}) is retained

Discussion of findings

Finding on the management competency needs of electrical distribution companies' staff shows that respondents agreed that all the items presented as competencies in the study were needed by electricity distribution companies' to enhance quality power supply. This finding agrees with Ajanaku (2007) in his studies on power distribution to the industrial sector in Nigeria which found that due to poor management, average daily power outage in the industrial sector has increased to a worrisome level. Similarly, HayGroup (2004) earlier pointed out that an organization's best source of competitive advantage lays with its employee's management styles. The finding is also consistent with Berger and Berger (2004) who asserted it is imperative for electricity distribution companies to develop programs and process to recruit, motivate and retain employee with capable management and technical abilities as this will increase their performance and in-turn improves the distribution of electricity in the country. Finding on the technical competencies needed by electricity distribution companies' staff for enhancing quality power supply indicates that respondents are of the view that electricity distribution companies' staff need technical competencies to enhance quality power supply. This finding is in line with Sowande (2002) who posited that the technical competency of an employee encourages the improvement of one's commitment to his work as well as job performance. Both engineers in academic field and those in industries agreed that there is every need for electricity distribution staff to possess both management and technical skill to enhance their performance at work to improve quality power supply system.

CONCLUSION

Based on the findings of the study, it was concluded that both managerial and the technical competencies of staff positively affects the effective commitment of employees, and in turn affects normative and continual commitment of performance. The managerial



and technical skills competencies possessed by electricity distribution company staff will therefore, enable them prepare themselves for their occupation, organizational success and customers' satisfaction as well. The researchers asserted that distribution company's staff without proper grasp of the managerial and technical skills are ineffective and can only end up been effective demonstrators of ignorance at their place of work.

RECOMMENDATIONS

Based on the findings of the study, the researchers recommended that:

1. Electricity distribution companies in Nigeria should always employ people with high management competencies that can actually fulfill the objective of distribution companies towards improving the quality of power supply.
2. Electricity distribution companies in Nigeria should recruit staff with high technical skills. This will therefore, enhance organizational success in terms of quality power supply.
3. Electricity distribution companies in Nigeria should engage their staff in retraining programmes as this will enable staff to acquire modern management techniques and technical skills that will enhance performance in electrical installation and maintenance work practice.

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