

**ENTREPRENEURIAL COMPETENCIES NEEDED BY
ELECTRICAL/ELECTRONIC GRADUATES OF TECHNOLOGY EDUCATION
FOR SELF-EMPLOYMENT IN ENUGU STATE**

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ABSTRACT: *The objective of this study is to determine the entrepreneurial competencies required by electrical/electronics technology education graduates for self-employment in Enugu State. The study was necessitated because of the prevailing issue of unemployment among graduates of higher institutions which has become a thing of worry for all and sundry. Three purposes of the study with corresponding three research questions and a null hypothesis guided the study. A survey research design was used for the study. Population was 185 graduates of electrical/electronics (tech) education which comprises of 118 government employed and 67 self-employed graduates of the same programme in Enugu State. The instrument for data collection was questionnaire meticulously structured by the researcher which was made up of three sections according to the three research questions of the study. The questionnaire has a total number of 41 item statements structured in four point response categories of very highly needed, highly needed, slightly needed, and not needed with weighting values of 4, 3, 2 and 1 respectively. 185 copies of the questionnaire were administered to the respondents and collected back by the researcher. Mean with standard deviation was used to answer the three research questions of the study while t-test was used to test the null hypothesis at 0.05 level of significance. The findings of the study showed that ability to accommodate and plan for changes in technology among others are the managerial competencies needed for self-employment while skills to rectify faults among other findings are the technical/ICT competencies needed by graduates of electrical/electronics (tech) education for self-employment. Also, it was found that ability to take wise decisions based on the available facts and being honest to customers and employers among others are interpersonal competencies needed by the graduates for self-employment. Based on the findings of the study, recommendations were made which include, that education authorities and the government at all levels should create enough awareness about entrepreneurship education for onward eradication of the ailing problems of unemployment and abject poverty that abound in the country.*

KEYWORDS: Entrepreneurial Competencies, Electrical and Electronics Graduates, Self-Employment, Education

INTRODUCTION

Electrical/electronics technology education is a programme of study that is offered in tertiary institutions like colleges of education, polytechnics and universities. The courses in the programme are given to the undergraduates of such institutions to equip them to face the challenges of employment or unemployment that comes after their graduation. Electrical/electronics technology education programme was designed to provide, training for persons interested in the trade areas among which are installation and maintenance of electrical and electronics systems found in residential, commercial and industrial buildings. The

programme which graduates of electrical/electronics technology graduates went through are meant to train them as competent teachers in their area on to be employed in industries or become successful entrepreneurs. This is in accordance with the objectives of university education as contained in National Policy of Education (2013) which states that university education should mark optimum contribution to national development by:

- a) intensifying and diversifying its programmes for the development of high level manpower within the context of the needs of the nation;
- b) Making professional course content reflect our national requirements;
- c) Making all students part of a general programme of all-round improvement in university education, to offer general study courses such as history of ideas, philosophy of knowledge, nationalism, and information technology (IT); and
- d) Making entrepreneurial skills acquisition a requirement for all Nigerian universities.

To be employed or become successful entrepreneur in any of the field areas of teaching education, graduates of electrical/electronics technology need to acquire certain competencies and skills to enable them contribute their bits in the overall development of the country. Hence, Onoh (2013) posited that graduates of technology programmes must possess some degree of competence in managerial, technical/information and communication technology (ICT) and financial accounting competencies to become successful entrepreneur. Recipient of technology education may find themselves working in the industries as technicians or technologists, in the teaching profession as teachers or become self-employed as entrepreneurs.

Therefore, one of the major aims of education is to prepare the recipient of such programmes for the world of work. Igbojionu (2008) stated that such aim is achievable when the students acquire relevant literate and numerate skills and competencies that will promote satisfaction brought about by successful self-employment and to enable them function well in the society. Igbojionu maintained that this satisfaction will be brought about by the acquisition of entrepreneurial competencies such that the recipient will recognize the social and economic benefits accruing to the entrepreneur. An entrepreneur on the other hand, is a person who assumes the responsibility and the risk of a business operation with the expectation of making profit (Anusa, 2010). Also, Nwachukwu (2005) sees an entrepreneur as dreamer and ambitious risk taker who loves to make things happen. Anusa and Nwachukwu have the same view about entrepreneurs, about their ability to take risk and utilize all available opportunities to maximize profit.

In another development, Osula (2004) viewed an entrepreneur as a good human relations officer that requires good human relations to attract and maintain customers. In that way, customers are responded or attended to with great effort to make them come again. Thus, a successful entrepreneur achieves its objectives by talking to or relating to customers calmly, cordially and respectfully to make them feel happy and at ease. To achieve this quality, entrepreneurs must possess entrepreneurial competencies to fall back on in order to succeed in the business.

The attribute of the entrepreneurs to succeed in a business venture is known as entrepreneurship, and entrepreneurial competencies are acquired through entrepreneurship education and training. It is through entrepreneurship education that entrepreneurial competencies are acquired. Therefore, competency is the ability of an individual to carry out

certain activities or specific jobs with effectiveness. To be competent, implies that one has acquired the knowledge, skills, attitude and judgment, which are required in order to perform successfully at a specific proficiency level in a given work (Olaitan and Ali (1997). Hence, competency in the context of this work connotes the ability of electrical/electronics technology education graduates to be self-employed (repairing or creating new components) instead of waiting for a paid employment that may come or may not come. Therefore, for graduates of electrical/electronic technology education to be self-employed, it is necessary to give special attention to this area by providing those graduates with the opportunities to acquire entrepreneurial skills and competencies through entrepreneurship education. This is because requisite skills and competencies to become successful entrepreneurs are acquired through entrepreneurship education.

Also, to succeed through entrepreneurship education, the competency required by the electrical/electronics educator must be determined. This is to determine the educators proficiency in imparting the skills and competencies which are considered the most important ingredient of technological developments. Competency according to Webster (2009) is the ability to do something well after learning and practicing what has been learnt. B.B.C English Dictionary (1992) defined competence as the ability to do something well effectively and following professional standards. To be competent means that the person concerned must possess skills to carry out certain jobs or tasks to an acceptable standard.

On the other hand, Atsumbe in Igbojionu (2008) described skills as knowledge and proficiency required in the accomplishment of engineering, scientific or any specific task. Therefore, entrepreneurial competencies required by electrical/electronics graduates of technical education for self-reliance or self-employment according to the context of the work include managerial, technical / ICT, and Interpersonal competencies. The competency need of graduates of technology education arises as a result of technology changes rising more rapidly all over the world. Technological needs of the industries appear to grow faster than the training and improvement training programmes in the institutions. International labour organization (ILO, 1998) noted that this slack was as a result of lack of proper technology orientation for the graduates of electrical/electronics, lack of proper human development programmes and absence of modern facilities for training the graduates to meet up with the changing needs of the industries. The changing needs of industries were necessitated by the technological changes and development growing on daily basis around the globe which is the result of changes in the demand of consumer products.

Hence, concerted efforts should be made to train technical graduates (electrical/electronics graduates inclusive) to enable them meet up with the current challenges in the world of work. To achieve this fit, teachers of technology should be equipped adequately to become competent educators, especially in the field of entrepreneurship. But, available records showed that most of the teachers are ICT and computer illiterate. Such educators need retraining to facilitate their personal and professional growth. Therefore, Amaewhule in Igbojionu (2008) stated that a good human development training programme for entrepreneurs should contain among others the managerial, technical/ ICT, and marketing competencies. Management competencies involve the process of planning, organizing, leading and controlling both human (personnel) and material resources in the enterprise. Technical competence is the ability of the graduates to innovate, or initiate new products or ideas, act positively and decisively with available facts to carryout specific tasks and functions to a standard. Also, interpersonal competency is the

ability of the graduate to relate cordially with others in the workplace, to be open and honest in dealing with clients and customers and been able to handle situations in case of controversy.

It appears that most of the graduates of higher institutions lack the necessary skills and competencies that would enable them become self-reliant. The evidence is the high rate of unemployment among the graduates of tertiary institutions, electrical/electronics technology education inclusive. This showed that such graduates lacks relevant skills and competencies for self-employment. Therefore, it is against this backdrop that the researcher set out to determine the entrepreneurial competencies needed by electrical/ electronics technology education graduates for self-employment in Enugu State.

Objectives

The study was designed to determine the following specific objectives;

1. The managerial competencies needed by electrical/electronics technology education graduates for self-employment.
2. The technical/ICT competencies needed by electronics/electronics technology education graduates for self-employment.
3. The interpersonal competencies needed by electrical/electronics technology education graduates for self-employment in Enugu State.

Research Questions

The following research questions guided the study

1. What are the managerial competencies needed by electrical/electronic technology education graduates for self-employment?
2. What are the technical/ICT competencies needed by electrical/electronics technology education graduates for self employment?
3. What are the interpersonal competencies needed by electrical/electronics education graduates for self-employment in Enugu State?

Hypothesis

There is no significant difference in the mean ratings of self-employed electronic/electrical technology education graduates and government employed graduates of the same programme on the managerial competencies needed by such graduates for self employed in Enugu State.

METHODOLOGY

Descriptive survey research design was used for the study. The survey design was adopted because data were collected from the respondents, analysed and findings described as they are without interference. This research design is in agreement with the definition of survey according to Iketaku (2011), that it is a research design that merely describes events in their most naturally occurring conditions without the researcher manipulating any variable(s) involved in the investigation.

The area of the study was Enugu State. The population for the study comprises of 67 graduates of electrical/electronics (Tech) that are successfully self employed and 118 graduates of the same programme that are employed in government establishments. Therefore the total number of the population used for the study was 185 electrical/electronics (Tech) education graduates in Enugu State. There was no sampling because the population was of manageable size, hence the entire population was used for the study. The instrument for data collection was a questionnaire which consisted of 41 items statements structured in a four-point rating scale of Very Highly Needed (VHN), Highly Needed (HN), Slightly Needed (SN) and Not Needed (NN) with weighting values of 4, 3, 2, and 1 points respectively. The instrument for data collection was face validated by three experts, two experts are in the area of the electrical/electronics (tech) education while one expert is the measurement and evaluation all in the Faculty of Education Enugu State University of Science and Technology (ESUT). The reliability of the instrument was determined by administering the instrument to 5 electrical/electronics (tech) graduate entrepreneurs and 5 government employed electrical/electronics Technical graduates in Imo State. The data collected was analyzed using Cronbach Alpha formula to establish the reliability index which was found to be 0.79 indicating that the instrument was reliable and, hence used to collect data for the study.

185 copies of questionnaire were distributed, completed and returned, hence representing 100% return rate. The researcher carried out this exercise with the help of two research assistants. Mean with standard deviation were used to answer the research questions of the study. Any item with a mean score of 2.50 and above was regarded as highly needed while items with mean ratings below 2.50 are regarded as slightly needed. For the null hypothesis of the study, it was tested using t-test at 0.05 level of significance. Thus, the decision was that if the t-calculated is greater or equal to t-table value at 0.05 level of significance, the null hypothesis will be rejected otherwise, it will not be rejected.

RESULTS

Table 1: Mean ($\bar{x}$) scores and standard deviations of the responses on managerial competencies needed by electrical/electronics (tech) Education graduates for self-employment

S/N	Managerial Competencies	Mean $\bar{X}$	Standard Deviation (SD)	Decision
1.	Ability to plan daily activities in the shop	3.79	0.40	Highly Needed
2	Ability to organize ideas and concepts related to the trade	3.47	0.64	Highly Needed
3	Ability to relate cordially with co-workers & supervisors	3.71	0.47	Highly Needed
4	Ability to use feedback from customers and clients for improved performance	3.28	0.77	Highly Needed
5	Skills in time management	3.67	0.46	Highly Needed
6	Ability to manage human and material resources in the business	3.70	0.55	Highly Needed
7	Ability to accommodate and plan for changes in technology	3.94	0.22	Highly Needed

8	Ability to determine employee training and development needs	3.03	0.75	Highly Needed
9	Skill to set realistic business goals	3.50	0.50	Highly Needed
10	Set out plans effectively for goal attainment	3.58	0.53	Highly Needed
11	Determine employee remunerations	3.57	0.49	Highly Needed
12	Ability to appraise employee performance for purpose of promotion	3.30	0.67	Highly Needed
13	Ability to keep record/inventory of materials, tools and equipment	3.84	0.35	Highly Needed
14	Ability to charge customers fairly on goods and services	3.69	0.53	Highly Needed
		3.57	0.52	

In table 1 all the items have the mean score above the cut off mean of 2.50 showing that all the item statements in table 1 are managerial competencies needed by graduates of electrical/electronics technology education for self-employment. The grand standard deviation of 0.52 shows that the degree of disparity in their responses is slim.

Table 2: Mean (x) scores and standard deviations of the respondents on Technical/ICT competencies needed by electrical/electronics technology education graduates for self-employment.

S/N	Technical/ICT Competencies	Means $\bar{X}$	Standard Deviation (SD)	Decision
15	Ability to identify faults in electrical/electronics equipment & appliances	3.75	0.46	Highly Needed
16	Skills to rectify faults in appliances	3.92	0.25	Highly Needed
17	Ability to draw plans for domestic and industrial electrical installations	3.47	0.51	Highly Needed
18	Ability to select tools and materials to be used for in MICC cable installation	3.85	0.34	Highly Needed
19	Skills to carryout simple surface and concealed conduit installation works in residential houses	3.46	0.63	Highly Needed
20	Ability to select correct cable	3.73	0.45	Highly Needed
21	Ability to carryout industrial/duct installations	3.52	0.50	Highly Needed
22	Ability to repair DC motors & generators	3.64	0.51	Highly Needed
23	Skills in carrying out repairs in single phase and polyphase AC motors and generators.	3.41	0.49	Highly Needed
24	Skills to test for continuity and earthing connections -	3.48	0.55	Highly Needed
25	Ability to interpret electrical/ electronics circuits symbols and working diagrams	3.78	0.41	Highly Needed

26	Skill to assess and use internet resources provides	3.41	0.49	Highly Needed
27	Skills in performing word processing activities such as typing, editing formatting and printing documents using M/S word.	3.56	0.52	Highly Needed
28	Ability to use DC and AC meters	3.96	0.17	Highly Needed
29	Skill in clearing faults common in the each stages of coloured television.	3.34	0.60	Highly Needed
30	Ability to repair radio set understand the operation	3.53	0.50	Highly Needed
		3.61	0.46	

All the items in Table 2 have their mean scores above the cut off mean of 2.50 and the grand mean was 3.61. Thus, it means that the technical/ICT competencies stated in the items are highly needed by graduates of electrical/electronics technology education for self-employment.

Table 3: Mean (x) scores and standard deviations on the responses on interpersonal competencies needed by electrical/electronics technology education graduates for self-employment

S/N	Interpersonal Competencies	Mean $\bar{X}$	Standard Deviation (SD)	Decision
31	Ability to listen attentively	3.35	0.52	Highly Needed
32	Ability to render supportive services to the employer	3.69	0.46	Highly Needed
33	Being sensitive to the needs of others empathetically.	3.56	0.51	Highly Needed
34	Being honest to the employer and customers	3.82	0.37	Highly Needed
35	Ability to take decisions based on the available facts	3.77	0.41	Highly Needed
36	Ability to delegate authority to employees	3.67	0.48	Highly Needed
37	Being trustworthy	3.45	0.49	Highly Needed
38	Ability to interact with people openly and fairly	3.32	0.60	Highly Needed
39	Ability to encouraged innovation	3.49	0.51	Highly Needed
40	To be punctual and regular at work	3.68	0.46	Highly Needed
41	Ability to control emotions and situations as the need arises.	3.51	0.52	Highly Needed
Grand Mean & SD		3.57	0.48	

Also, in Table 3, all the item statements have their mean scores above the cut off mean of 2.50 and a grand mean of 3.57. This shows that all the item statements in this table are regarded as interpersonal competencies needed by the graduates electrical/electronics technology education for self-reliance. The overall standard deviation in table 3 is 0.48 showing that there is little disparity in the responses of the respondents on interpersonal competencies needed by electrical/electronics (tech) education graduates for self-employment.

Table 4: t-test of difference between means $\bar{x}$ of government employed and self-employed of graduates on the managerial competencies needed by electrical/electronics technology education graduates for self-employment.

Employment Status of Graduates	Means (x)	Standard Deviation	Number (N)	Degree of Freedom	t- Calculated	t-table	Decision
Government Employed	3.65	0.27	118	183	3.59	1.96	Rejected
Self-Employed	3.51	0.23	67				

Table 4 shows that the calculated t is 3.59 and it is greater than the table t of 1.96 tested at 0.05 level of significance and at 183 degree of freedom. Hence, the null hypothesis which stated that there is no significance difference in the mean ratings of self-employed and government employed graduates of electrical/electronics technology education on managerial competencies needed by such graduates for self-employment is rejected. This shows that the opinions of self-employed and government employed electrical/electronics technology education graduates on the competencies they needed for self employment differs significantly.

Discussion of Findings

Findings of the study according to research question one showed that to have self-employable graduates of electrical/electronics technology education in Enugu State, managerial competencies, technical/ICT competencies and interpersonal competencies must be possessed by the graduates. This findings concur with the statement made by Onoh (2013) that graduates of technology programmes must possess some degree of competences in managerial, technical;/information and communication technology (ICT) and financial accounting competencies to become successful entrepreneur. Previous study like that of Akpan (2003) shows that majority of the graduates are only interested in passing their exams and possessing degrees rather than acquiring the basic competencies required for self-employed. Hence, the present study posed the specific competencies that must be acquired by the graduates of electrical electronics technology education to become successful entrepreneurs.

The findings of these study also showed that entrepreneurship education is an indispensable tool for self-employment. This agrees with what Anyakoha (1995) stated that entrepreneurship education is a vital element of self-employment, which management skills are part and parcel. The study shows that those graduates who lack entrepreneurial competencies end up increasing the number of unemployed graduates while very few graduates who possessed the competencies get themselves busy on their own little way because of limited resources.

CONCLUSION

Based on the findings of the study, it was concluded that electrical/electronics technology education graduates needed managerial, technical/ICT, and interpersonal competencies to become self-employed in Enugu State. The competencies if well acquired by the graduates will go a long way to equip them to face the challenges of self-reliance like being able to produce goods and services of utility value. It was discovered that the inability of most of the graduates

to be self-employed was as a result of non possession of the competencies necessary for self-employment.

RECOMMENDATIONS

Based on the findings and conclusion of the study, the following recommendations were made;

1. that adequate facilities should be provided by the government for the training of students of technology education programmes
2. that education authorities should create enough awareness about entrepreneurship education
3. that more experts in entrepreneurship studies should be employed by government to empower students at all levels with the entrepreneurial competencies needed for their self-employment.

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