



Entrepreneurial Competencies Needed By Students of Electrical/Electronics Technology Education for Self-Employment and Economic Development

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Abstract

Original Research

Entrepreneurial competencies refer to a set of capacities, features and understanding that enable an individual to successfully discover opportunities. Considering the prevailing rate of unemployment amongst the graduates which led to increased poverty and serious social problems, the study was conducted to determine the entrepreneurial competencies needed by students of electrical/electronics technology education for self-employment and economic development. The study adopted descriptive survey design and conducted in Ebonyi state. The population for the study was 200. The entire population was studied due to the small size of the population. The instrument for data collection was structured questionnaire validated by experts from Ebonyi State University, Abakaliki. The reliability of the instrument was determined using cronbach alpha reliability coefficient. Data collected were analyzed using mean and standard deviation for the research questions, while t-test was used to test the null hypotheses at 0.05 level of significance. The findings of the study showed that Information and Communication Technology skills, financial skills and managerial skills are among the entrepreneurial competencies needed by students of electrical/electronics technology education for self-employment and economic development. The educational implication of the finding is that the students should be able to have good knowledge of information and communication technology skills, possess high financial and managerial skills. The study therefore recommended that government should make frantic efforts to enhance Information Communication Technology skills, financial skills and managerial skills acquisition among the students for improved performance in their world of work and contribute their quota in economic development.

Keywords: Entrepreneurial competencies, managers and supervisors, technology and vocational education, self-employment, economic development.

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Introduction

Entrepreneurial competencies are basic skills necessary to enable an individual start, develop, finance and succeed in business. They are those skills

acquired in the course of education that enables individuals to function effectively in changing business environment as entrepreneurs. (Iwuoha et al. 2021). The skills encompass a broad range of



various skill sets like technical skills, leadership and business management skills and creative thinking as it can be applied to many different job roles and industries. Ogbu (2016) enumerated some of the skills to include; creative and inventive thinking skills, innovative skills, development skills, financial management skills, ICT skills and classical administrative skills. Herrity (2023) stated that entrepreneurial competencies can encompass a broad range of various skill sets like technical skills, leadership and business management skills and creative thinking. Enang (2023) stressed that entrepreneurial competencies are developed set of knowledge, attitudes and skills required by an entrepreneur for initiating and sustaining a business venture. The inclusion of these skills into the electrical technology education programme would reduce the rate of dependence on government for job, instill in the graduates the right mindset, the ability to be creative and innovative and be able to create jobs out of their chosen career or perform very well in their various fields. So for the graduating students of electrical/electronics technology education to operate efficiently and effectively in their area of specialization, be self employed or successful entrepreneur and add to economic development, they require entrepreneurial competencies like; Information and Communication Technology skills, financial skills and managerial skills.

The acronym ICT which stands for Information and Communication Technology is the combination of three words: Information, Communication and Technology. Information is the manipulation or processing of data that are useful in decision making, communication include all media employed in the transmission of information while technology includes such things as computer technology, the internet technology, telephone and broadcasting technologies. Information and Communication Technology according to Oyadiran *et al.* (2023) has undergone a very quick development and has been introduced to all segments of people's lives for everyday use. It refers to the convergence of media technology such as audio-visual and telephone networks with computer networks by means of a unified system of cabling including signal distribution and management or link system.

(Oyadiran *et al.* 2023). Information and Communication Technology does three things: process raw data into useful information, recycle processed information and use it as data in another processing circle, and package information in a new form so that it will be easier to understand and more useful. It is described as consisting of hardware, software, network and media for the collection, storage, processing, transmission and presentation of information.

Financial skills involve the process of getting the fund a firm needs and putting the fund into use. It is the lifeblood of every business organization and as such is vital to the existence of business. Finance is the propeller that keeps the engine of business organization running. Fatoki (2014) stated that there should be need for entrepreneurs to exhibit high level of financial skills in financial planning, analysis and terminology, financial and information skills, technology utilization and risk management. Financial skills according to Abubakar (2015) include skills as budgeting, bill payment, shopping, debt management, consumer issue handling and comparison shopping emphasizing practical application. Ogbu (2016) added that financial literacy impacts on the young graduates the basic skills of bookkeeping, accounting, budgeting and expenditure control through the use of scale of preference in economics. These skills will help the students of electrical/electronics technology education on graduation and engaged to get fund needed on favourable terms and use the fund effectively.

Managerial skills are competencies needed by the students of electrical/electronics technology education to formulate and execute policies of an enterprise which constitute management. Ogbu (2016) stressed that these skills will enable the entrepreneur to manage all other factors of production under his disposal efficiently and effectively for the progress and success of the enterprise. Successful entrepreneurs will most often rely on their managerial competencies to manage and run a business or brand. Developing management competencies is building up the ability to multitask, delegate responsibilities to subordinates and making

decisions regarding the health and profitability of the business. These competencies comprise of planning, organizing, staffing, leading or directing, and controlling an organization or effort for the purpose of accomplishing a goal. Resourcing encompasses the deployment and manipulation of human resources, financial resources, technological resources, and natural resources. Graduating students of electrical/electronics technology education need to possess these entrepreneurial competencies in order to achieve their organization's goal in own enterprise or perform effectively as managers and supervisors.

Managers and Supervisors in an Organization

A manager is a leader in an organization who directs and oversees a team or group of professional to achieve business goals. Shuaibu (2020) described manager as a person who contributes directly or indirectly towards achievements of an organization, company or institutions' goals and objectives through direction of other people. He or she is responsible for leading a team, assigning work that will achieve company goals and objectives, controlling a budget, hiring and staffing, coaching team members, providing feedback to employees, providing performance review, supporting team members' wellbeing and asking for feedback from employees. Sheehan (2022) noted that managers are one of the backbones of an organization that facilitate efficient operations in their organization area to achieve their goals and objectives, which vary from day-to-day operations to long term goals and milestones. He is a professional who oversees the strategy, operations and performance of a specific sector or vertical within an organization. Amakihi (2023) described a manager as a person that makes sure that all employees work towards organizational goals. The manager makes managerial decisions on behalf of the organization and coordinates the flow of activities. All the resources of the organization be it human resources, financial or operational resources are handled by the manager to ensure that they perform optimally.

Supervisors are those responsible for overseeing the

day to day tasks and activities of employees. Ulberg (2024) described supervisors as someone who leads a group of employees to achieve some desired result. Often, they work with employees but serve in a higher level role that provides guidance, direction and feedback. Supervisors are usually not decision-maker, but can be thought of as coaches or guides. Their role is to lead the team to successfully achieve day to day results. Typical activities of supervisors according to Ulberg (2024) include; creating goals, setting deadline, overseeing workflow, training employees to perform their task, monitoring employees, preparing performance reports, responding to employee and customer inquiries and complaints.

Managers and supervisors play roles in an organization like interpersonal roles, oversee other employees, ensuring proper budgeting, make decisions, set goals, hire and train new employees, monitoring and preparing performance reports, searching out new opportunities and innovations that will benefit their organization. All these roles are played by managers and supervisors in an organization due to the possession of unique skill which are synonymous to entrepreneurial competencies. So for the graduates of electrical/electronics technology education to operate efficiently in their area of specialization, or become self-employed and add to economic development, they need some set of entrepreneurial competencies that will sharpen them for effective discharge of their duties.

Self-Employment

Self-employment according to Onwusa, et al (2021), is the creation of job rather than the seeking for job. It is act of generating one's income directly from customers through working, patrons or other business as against being an employee of a company. Self-employed individuals typically secure their own assignments rather than relying on an employer to provide work. For graduates in electrical/electronics technology, the goal is to sharpen practical and technical skills in a focused area and develop true expertise. Olinya, et al (2022) posited that the

common definition of self-employment is that you work for yourself, full time or part time. He/she generates income through independent economic activities rather than working for a company or another person. Some key qualities for self-employed electrical/electronics graduates include willingness to take risks, tolerance for uncertainty, strong networking abilities, self-discipline, total dedication to hard work, passion, energy, creativity, and a drive for innovation. Self-employed individuals are autonomous, they secure their own assignments rather than relying on an employer to provide work and do not receive a regular salary from any employer, but rather pay taxes for the economic development of their area.

Economic Development

Economic development is the process of structural transformation with continuous technological innovation and industrial upgrading that increase labour, productivity and accompanied improvements in infrastructure and institution, which reduce transaction costs (Justin, 2017). It involves more than just increasing per capital output and income but involve initiating and constituting changes in the structure of business and society accompanied by growth and increased output. Oluka (2013) noted that any nation knowledgeable and skilled enough to influence positively the industrial, educational, agricultural and all other important sections of the economy is classified as a developed nation and to achieve these feats, the youth of such nation must be given the right type of education which will enable them to be self-employers or employers of labour after graduation. Oluka (2013) maintained that the preparation of a nation to fit-in adequately in national development is an important goal of education, hence the need for the type of education that will make its graduates or products acquire skills and knowledge to fit into occupation or become self-employed. She said the best education needed is entrepreneurship education through technology and vocational education.

Entrepreneurship education is an integral part of education that helps individuals to acquire the

attitude and skills that will make them self-reliant akin to technology and vocational education. Asotibe and Jummai (2016) submitted that technology and vocational education came into existence in Nigeria as a result of high demand for skilled personal and ever increasing technological advancement and unemployment situation in the country. With the growing rate of unemployment in Nigeria, acquisition of skills in various occupations is a means of salvaging the situation and can be achieved through technology and vocational education. Olayinka et al (2021) stated that entrepreneurial competencies can be obtained through education, training or experience that will inculcate into the individual how to carry out or discharge his/her responsibilities very well and this can be achieved through technology and vocational education.

Technology and Vocational Education

Technology and vocational education (TVE), according to the National Policy on Education FGN (2014) is a comprehensive term referring to those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life. FGN (2014) further sees TVE as not only being an integral part of general education, but it is an education that prepares individuals for occupational endeavours for effective participation in the world of work because in all the areas of technology and vocational education, emphasis is placed on skills acquisition. Technology and vocational education has many areas of specializations which electrical/electronics technology education is one of them. Nwogu and Nwanorvo (2011) stated that electrical/electronics technology education expectation is that graduates are provided with theoretical and practical knowledge such that the graduates acquire skills and be able to handle electrical installation as well as domestic appliance installation and maintenance. Okoro (2026) noted that the quality of the programme depends largely on the extent to which students acquire the knowledge, practical skills, and

entrepreneurial competencies taught in the classroom and reinforced through workplace experiences. The courses in the programme are given to the undergraduates of electrical/electronics technology education to equip them to face the challenges of employment or unemployment, become competent teachers in their area or to be employed in industries or become successful entrepreneurs (Oluka, 2016).

Statement of the Problem

Electrical/electronics technology education students in various tertiary institutions are prepared to obtain skills in their course of study, and the expectations on graduation is to acquire adequate skills that will give them opportunity for immediate paid job or establish their own businesses and be self-employed and contribute to boost the gross domestic product of their nation, but the high incidence of unemployment and out of work of many graduates is of great concern. Unfortunately, electrical/electronics technology students not obtaining entrepreneurial competencies like; Information and Communication Technology skills, financial skills and managerial skills maybe the cause of the high-rate of unemployment. Onoh and Moses (2015) noted that the major expectation from graduating student of electrical/electronics technology education is to acquire adequate skills for either paid job or self-employment after graduation, yet they are deficient in practical and entrepreneurship competencies that would make them get paid jobs and impractical to handle their own business and be self-employed. Oluka (2016) stressed that there is high rate of unemployment among the graduates of tertiary institutions, (electrical/electronics technology education graduate) inclusive, may be as a result of the kind of skills acquired by the graduates from their different institutions as most of them lack the necessary competencies that would enable them become employable. The problem of this study therefore, is that graduating students of electrical/electronics technology education seem to be lacking some necessary entrepreneurial competencies in Information and Communication Technology, financial and managerial skills that would make them employable, become self-reliance

and contribute their quota to economic development. It is based on the existing gap that the researcher set to determine the entrepreneurial competencies needed by students of electrical/ electronics technology education for self-employment and economic development.

Purpose of the Study

The main purpose of the study was to identify entrepreneurial competencies needed by students of electrical/electronics technology education for self-employment and economic development.

Specifically the study sought to;

- (i) Find out Information and Communication Technology competencies needed by students of electrical/electronics technology education for self employment and economic development.
- (ii) Discover financial competencies needed by students of electrical/electronics technology education for self employment and economic development.
- (iii) Ascertain managerial competencies needed by students of electrical/electronics technology education for self employment and economic development.

Significance of the Study

The findings of this study will be of immersed benefit to graduating students and graduates, electrical/electronics technology education teachers, parents, curriculum planners, policy makers, the society and Nigeria in general.

The graduating students of electrical/electronics will benefit from the findings of the study if identified entrepreneurial competencies are incorporated into the school curriculum. These skills may be used to train the students, they shall acquire it and when they graduate should be able to set up their own businesses and earn a living. The identified skills could also be used to retrain graduates of electrical/electronics technology education at skills acquisition centres.

The electrical/electronics technology education

teachers can also benefit from the findings of this study. The findings could be used to organize workshops and seminars for electrical/electronics technology teachers in order to build their capacity for effective implementation of entrepreneurial competencies in their institutions. This study may help the teachers to know the necessary entrepreneurial competencies that can make students to be self reliant.

Parents will benefit from the findings of the study as their wards will graduate with skills to set up their businesses. These wards can have money to take care of themselves and their parents even entire family members.

Curriculum planners and policy makers would benefit from the findings of the study. They can adopt the findings of the study without conducting fresh study on the aspect of entrepreneurial competencies to be incorporated in the curriculum of tertiary institutions.

The society also will benefit from the findings of the study because as the graduating students are well-trained and equipped with entrepreneurial competencies, the society will have crop of skilled graduates to repair and maintain all kinds of malfunction electrical and electronics equipment and become good instructors among the members of society.

The study would be beneficial to Nigeria as the cost of training of these electrical/electronics technology education students by government may not be a waste because the graduates could be self employed and contribute their quota to technological and economic development of the nation.

Finally the study will aim at making theoretical and practical contributions to already existing theories as it can be published presented in seminar, workshops, conferences and be of great help to other researchers.

Scope of the Study

The study is delimited to entrepreneurial competencies needed by students of electrical/electronics technology education for self employment and economic development. The study focused on the Information and Communication Technology skills, financial skills and managerial

skills needed by students of electrical/electronics technology education for self-employment and economic development.

Research Questions:

The following research questions guided the study:

- (i) What are the Information and Communication Technology competencies needed by students of electrical/electronics technology education for self employment and economic development?
- (ii) What are the financial competencies needed by students of electrical/electronics technology education for self-employment and economic development?
- (iii) What are the managerial competencies needed by students of electrical/electronics technology education for self-employment and economic development?

Hypotheses:

The following null hypotheses were tested at 0.05 level of significance:

- H01: There is no significant difference between the mean response of managers and supervisors on ICT competencies needed by students of electrical/electronics technology education for self employment and economic development.
- H02: There is no significant difference between the mean response of managers and supervisors on financial competencies needed by students of electrical/electronics technology education for self employment and economic development.
- H03: There is no significant difference between the mean response of managers and supervisors on managerial competencies needed by students of electrical/electronics technology education for self employment and economic development.

Material and Methods:**Design of the Study**

The study adopted descriptive survey design.

Area of the Study

The study was conducted in Ebonyi State Nigeria. Ebonyi state is situated between latitudes 6° and 7°N and longitudes 8° and 9°E. It is bordered by Enugu state to the west, Abia state to the south and Cross River state to the east and shares boundary with Benue state to the North. Culturally the State which is characterized by a hilly and mountainous terrain falls within Igbo land, the home land of the Igbo people. The zone contributes greatly to the Nigerian economy due to natural deposits like coal, lead, zinc, limestone and salt. The fertile land supports various agricultural activities with crops such as rice, yam, cassava and maize being widely cultivated. The economy is largely agrarian, but also relies on trade, mining and small scale industries. There are many registered small scale industries because of the natural reserves within the state. The choice of the state was due to prevalent rate of unemployment of graduates of electrical/electronics education technology and frequent complain of some managers and supervisors in some of the industries observed by the researcher. (Ebonyi State Government Profile, 2022).

Population of the Study

The population of the study is 200 which comprised of 100 managers and 100 supervisors selected from the registered small scale industries in State. There was no sampling due to the small size of the population of study.

Instrument for Data Collection

The instrument for data collection was the researcher's designed questionnaire. The instrument titled, Entrepreneurial Competencies Questionnaire (ECQ) had 65 items and divided into two sections, A and B. Section A which has one item was designed to elicit information on the status of the respondents.

Section B consists of three clusters according to the research questions. Cluster 1 elicited information on ICT competencies, cluster 2 elicited information on financial competencies, while cluster 3 elicited information on managerial competencies. Section B also has a 4-point scale which was rated as follows; Highly Needed (HN) = 4, Needed (N) =3, Not Needed (NN) =2, and Not Highly Needed (NHN) =1.

Validation of the Instrument

Face validity of the instrument (ECQ) was done by three experts, two from Technology and Vocational Education Department and one from Science Education Department of Ebonyi State University, Abakaliki. The experts were required to determine the clarity and suitability of the instrument in addressing the specific objectives of the study. Based on their corrections, suggestions and inputs, some items were modified and the final copy of the questionnaire was produced.

Reliability of the Instrument

The reliability of the instrument was determined by administering it on 30 respondents from Enugu state which is not part of the study area. The state was chosen by the researcher because of the presence of many robust industries. Cronbach Alpha reliability coefficient was used to determine the internal consistency of the instrument. The application of the Cronbach Alpha reliability coefficient for the three clusters yielded coefficient values of 0.79, 0.77 and 0.74 respectively, with overall reliability coefficient value of 0.77. The instrument was considered reliable in line with Ogbazi and Okpala (1994) who stated that if the coefficient obtained on an instrument is up to 0.60 and above the instrument should be considered good enough to be used for the study.

Method of Data Collection

A consent letter was written by the researcher attaching the questionnaire explaining the purpose of the study and presented at the gate of each

establishment. The researcher with the help three research assistants administered and collected the copies of the questionnaire from the respondents. The research assistants who were instructed by the researcher on how to administer and collect the instrument in a friendly way and to ensure safe handling were used to facilitate the distribution and retrieval of the copies of the questionnaire. The copies of the questionnaire were administered to the respondents and collected three days later to give the respondents time to fill the items. Out of the 200 copies of the questionnaire administered to the respondents, 182 copies (85 from managers and 97 from supervisors) representing 91% were dully filled and returned.

Method of Data Analysis

The copies of the returned questionnaire were examined to ascertain if they contained complete

information. Data collected were analyzed using mean and standard deviation for the research questions while t-test was used to test the null hypothesis at 0.05 level of significance. The bench mark for the research questions was that items that scored 0.1 to 2.49 were adjudged not needed (NN) while items that scored 2.50 and above were adjudged needed (N). The null hypotheses were accepted for any test statistic with p-values greater than 0.05 level of significance and rejected for any test statistic with p-values less than 0.05 level of significance.

Results

Research Question 1

What are the Information and Communication Technology competencies needed by students of electrical/electronics technology education for self employment and economic development?

Table 1: Information and Communication Technology Competencies Needed by Students of Electrical /Electronics Technology Education.

S/N	Item Statement	Mean	SD	Dec.
1	Skill to booth the computer	2.73	1.25	N
2	Ability to produce text document	2.55	1.23	N
3	Ability to save document	2.81	1.29	N
4	Ability to retrieve saved document	2.77	1.19	N
5	Skill to edit a document	2.55	1.31	N
6	Skill to copy and update document	2.86	0.99	N
7	Skill in knowledge of graphics.	2.59	1.11	N
8	Skill in electrical/electronic design	2.48	0.83	NN
9	Skill to print document	2.43	1.06	NN
10	Skills in spreadsheet operations	2.40	0.83	NN
11	Ability to store document in CD and flash drive	2.60	1.02	N
12	Skills in Database operations	2.39	0.93	NN
13	Skill to Fax messages	2.76	1.32	N
14	Skill to download information from the net	2.46	0.97	NN
15	Ability to use email	2.73	1.23	N
16	Ability to handle twitter	2.62	1.17	N
17	Ability to upload information into the net	2.40	1.09	NN

18	Ability to chat on line.	2.68	1.21	N
19	Ability to source information using web search engines	2.58	1.05	N
20	Ability to make business transaction on line	2.49	1.26	NN
21	Ability to network with individual and groups	2.77	0.93	N
22	Ability to create web sites for customers	2.76	1.23	N
23	Ability to protect sites from hijackers	2.50	0.85	N
24	Skill in computer security.	2.63	1.23	N
Grand Mean		2.61	0.87	N

N= Needed, NN= Not Needed, Dec= Decision

Result in Table 1 showed that most of the items attracted needed by the respondents. The managers and supervisors are more satisfied with skills to copy and update document ($\bar{x} = 2.86, \pm 0.99$), Ability to save document ($\bar{x} = 2.81, \pm 1.29$), Ability to retrieve saved documents ($\bar{x} = 2.77 \pm 1.19$), Ability to network with individual and groups ($\bar{x} = 2.77 \pm 0.93$), and least satisfied with the ability to upload information into the net ($\bar{x} = 2.40 \pm 1.09$). The overall mean of 2.61 is more than 2.50, the index used to judge the required skills. The result therefore imply that Information and Communication Technology

skills are among entrepreneurial competencies needed by students of electrical/electronics technology education for self-employment and economic development

Research Questions 2

What are the financial competencies needed by students of electrical/electronics technology education for self employment and economic development?

Table 2: Financial Competencies Needed by Students of Electrical/Electronics Technology Education.

S/N	Item Statement	Mean	SD	Dec.
25	Skills in preparing statement of account	2.71	1.23	N
26	Ability to record accounting information	2.57	1.25	N
27	Ability to make business budget	2.74	1.25	N
28	Ability to maintain financial stability	2.84	1.23	N
29	Skills in financial planning.	2.51	1.28	N
30	Ability to control outflow of money	2.70	0.87	N
31	Ability to analyze company's financial documents	2.54	1.07	N
32	Skills to identify potential risk factor	2.74	1.07	N
33	Skills in cash flow management	2.38	1.01	NN
34	Ability to interpret financial statements	2.73	1.15	N
35	Oversees the inflow and outflow of money	2.54	0.96	N
36	Skills in effective financial recording	2.73	1.22	N
37	Skills to make important financial decision	2.43	1.07	NN
38	Ability to prepare trading, profit and loss account	2.77	1.22	N

39	Ability to Keep accounting records	2.49	1.04	NN
40	Ability to know about where to find capital	2.66	1.20	N
41	Ability to prepare a ledger account.	2.35	1.05	NN
42	Ability to prepare estimation.	2.69	1.22	N
43	Skills to oversee the inflow cash	2.79	1.21	N
44	Skills in pricing of materials	2.27	1.05	NN
	Grand Mean	2.61	0.90	N

N= Needed, NN= Not Needed, Dec= Decision

Result in Table 2 showed that many of the items attracted needed by the respondents. The managers and supervisions are more satisfied with ability to maintain financial stability ($\bar{x}= 2.84 \pm 1.23$), skills to oversee the inflow of cash ($\bar{x}=2.79, \pm 1.21$), ability to prepare trading, profit and loss account ($\bar{x}= 2.77, \pm 1.22$), ability to make business budget ($\bar{x}= 2.74, \pm 1.25$), skills to identify potential risk factor ($\bar{x}= 2.74, \pm 1.07$), and least satisfied with skills in pricing materials ($\bar{x}= 2.27, \pm 1.05$). The result therefore implies that financial skills are among

entrepreneurial competencies needed by students of electrical/electronics technology education for self employment and economic development.

Research Questions 3

What are the managerial competencies needed by students of electrical/electronics technology education for self employment and economic development?

Table 3: Managerial Competencies Needed by Students of Electrical/Electronics Technology Education.

S/N	Item Statement	Mean	SD	Dec.
45	Ability to organize ideas related to electrical/electronics enterprises	3.84	0.48	N
46	Ability to manage human resources	3.37	0.52	N
47	Ability to plan daily activities in electrical/electronics workshop	3.66	0.62	N
48	Ability to accommodate and plan for changes in technology	3.27	0.52	N
49	Skills in time management	3.59	0.49	N
50	Ability to organize concepts related to electrical/electronics enterprises	3.25	0.56	N
51	Ability to use feedback from customers and clients.	3.52	0.54	N
52	Ability to plan for a feasibility study for electrical/electronics business	3.56	0.70	N
53	Ability to plan for improvement of electrical/electronics products and services	3.57	0.68	N
54	Ability to manage material resources in electrical/electronics enterprises	3.47	0.73	N

55	Ability to make plans for payment of workers	3.62	0.61	N
56	Ability to plan for recruitments	3.49	0.70	N
57	Ability to applying project management principles	3.45	0.72	N
58	Skills in maintaining safety	3.38	0.64	N
59	Skills in identifying business opportunities	3.41	0.70	N
60	Ability foster relationship among member of the organization.	3.23	0.83	N
61	Ability to coordinating activities of events.	3.32	0.73	N
62	Ability to delegate tasks or responsibilities	3.24	0.75	N
63	Ability to set appropriate business goals	3.26	0.67	N
64	Ability to organize resource for goal attainment	3.09	0.63	N
65	Ability to demonstrate respect for others within the organization and customers.	3.36	0.80	N
Grand Mean		3.43	0.31	N

N= Needed, NN= Not Needed, Dec= Decision

Result in Table 3 showed that all the items attract needed by the respondents. The managers and supervisors are more satisfied with ability to organize ideas related to electrical/electronics enterprises ($\bar{x} = 3.83, \pm 0.48$), ability to plan daily activities in electrical/electronics workshop ($\bar{x} = 3.66, \pm 0.62$), ability to make plans for payments of workers ($\bar{x} = 3.62, \pm 0.61$) and are least satisfied with

ability to organize resource for goal attainment ($\bar{x} = 3.09, \pm 0.63$). The overall mean of 3.43 is more than 2.50, the index used to judge the needed skills. The result implies that managerial skills are among the entrepreneurial competencies needed by students of electrical/ electronics technology education for self employment and economic development.

Hypothesis 1

Table 4: t-test Analysis of the Mean Responses of Managers and Supervisors on Information and Communication Technology Competencies Needed by Students Electrical/ Electronics Technology Education.

S/N	Variables	Managers (N = 85) Mean $\pm$ SD	Supervisor (N = 97) Mean $\pm$ SD	t value	p value
1	Skill to booth the computer	2.84 $\pm$ 1.26	2.64 $\pm$ 1.23	1.058	0.291
2	Ability to produce text document	2.67 $\pm$ 1.22	2.44 $\pm$ 1.24	1.243	0.216
3	Ability to save document	2.91 $\pm$ 1.21	2.72 $\pm$ 1.35	0.963	0.337
4	Ability to retrieve saved document	2.69 $\pm$ 1.26	2.85 $\pm$ 1.30	0.852	0.395
5	Skill to edit a document	2.71 $\pm$ 1.29	2.42 $\pm$ 1.31	1.459	0.146
6	Skill to copy and update document	2.75 $\pm$ 1.06	2.95 $\pm$ 0.93	1.329	0.186
7	Skill in knowledge of graphics.	2.51 $\pm$ 1.12	2.66 $\pm$ 1.09	0.935	0.351

8	Skill in electrical/electronic design	2.60±0.85	2.37±0.79	1.879	0.062
9	Skill to print document	2.44±1.02	2.42±1.11	0.080	0.937
10	Skills in spreadsheet operations	2.65±0.77	2.19±0.83	3.868*	0.000
11	Ability to store document in CD and flash drive	2.68±0.97	2.54±1.07	0.962	0.337
12	Skills in Database operations	2.60±1.04	2.22±0.79	2.820*	0.005
13	Skill to Fax messages	2.72±1.31	2.79±1.34	0.387	0.699
14	Skill to download information from the net	2.48±1.03	2.44±0.91	0.271	0.787
15	Ability to use email	2.87±1.09	2.61±1.33	1.440	0.152
16	Ability to handle twitter	2.74±1.21	2.52±1.14	1.298	0.196
17	Ability to upload information into the net	2.48±1.06	2.32±1.12	0.999	0.319
18	Ability to chat on line.	2.76±1.13	2.60±1.27	0.929	0.354
19	Ability to source information using web search engines	2.41±1.02	2.72±1.05	2.009*	0.046
20	Ability to make business transaction on line	2.66±1.27	2.34±1.24	1.711	0.089
21	Ability to network with individual and groups	2.66±0.98	2.87±0.87	1.508	0.134
22	Ability to create web sites for customers	2.74±1.29	2.78±1.18	0.231	0.818
23	Ability to protect sites from hijackers	2.60±0.85	2.41±0.85	1.487	0.139
24	Skill in computer security.	2.67±1.22	2.59±1.25	0.452	0.652
Overall		2.66±0.91	2.56±0.84	0.784	0.434

* Significant at $p < 0.05$

Result in Table 4 showed that though 3 items out of 24 items led their P-value less than 0.05 level of significance, the overall means response of managers and Supervisors are 2.66 and 2.56 respectively, overall t-cal is 0.784 while overall P-value is 0.434. The overall P-value of 0.434 is greater than the 0.05 level of significance, this implies that, the hypothesis

which states that there is no significant difference between the mean response of managers and supervisions on Information and Communication Technology competencies needed by students of electrical /electronics technology education for self employment and economic development is accepted.

Hypothesis 2**Table 5:** t-test Analysis of the Mean Responses of Managers and Supervisors on Financial Competencies Needed by Students Electrical/ Electronics Technology Education

S/N	Variables	Managers (N = 85) Mean ±SD	Supervisor (N = 97) Mean ±SD	t value	p value
25	Skills in preparing statement of account	2.84±1.26	2.60±1.20	1.127	0.190
26	Ability to record accounting information	2.67±1.22	2.48±1.28	1.002	0.318
27	Ability to make business budget	2.81±1.16	2.68±1.33	0.706	0.481
28	Ability to maintain financial stability	2.79±1.32	2.89±1.15	0.537	0.592
29	Skills in financial planning.	2.71±1.29	2.34±1.24	1.941	0.054
30	Ability to control outflow of money	2.56±0.89	2.82±0.84	2.022	0.045
31	Ability to analyze company's financial documents	2.51±1.12	2.58±1.03	0.448	0.654
32	Skills to identify potential risk factor	2.79±1.01	2.70±1.13	0.545	0.586
33	Skills in cash flow management	2.48±1.06	2.30±0.97	1.216	0.226
34	Ability to interpret financial statements	2.98±1.02	2.52±1.21	2.756*	0.006
35	Oversees the inflow and outflow of money	2.64±0.92	2.45±0.99	1.274	0.204
36	Skills in effective financial recording	2.88±1.23	2.59±1.21	1.631	0.105
37	Skills to make important financial decision	2.34±0.98	2.51±1.14	1.033	0.303
38	Ability to prepare trading, profit and loss account	2.86±1.30	2.69±1.14	0.929	0.354
39	Ability to Keep accounting records	2.64±0.92	2.36±1.12	1.788	0.075
40	Ability to know about where to find capital	2.74±1.21	2.59±1.20	0.800	0.425
41	Ability to prepare a ledger account.	2.44±1.02	2.28±1.08	1.006	0.316
42	Ability to prepare estimation.	2.76±1.13	2.64±1.30	0.690	0.491
43	Skills to oversee the inflow cash	2.74±1.29	2.85±1.13	0.580	0.563
44	Skills in pricing of materials	2.42±1.07	2.13±1.01	1.877	0.062
Overall		2.68±0.93	2.55±0.88	0.965	0.336

* Significant at $p < 0.05$

Result in Table 5 show that one item had p-value less than 0.05 level of significance. The overall means response of managers and supervisors and 2.68 and 2.55 respectively, the overall t-cal is 0.965 and overall p-value is 0.336. Since the overall p-value of 0.336 is greater than 0.05 level of significance, this

implies that, the hypothesis which states that there is no significant difference between the mean response of managers and supervisions on financial competencies needed by students of electrical /electronics technology education for self-employment and economic development is accepted.

Hypothesis 3

Table 6: t-test Analysis of the Mean Responses of Managers and Supervisors on Managerial Competencies Needed by Students Electrical/ Electronics Technology Education.

S/N	Variables	Managers (N = 85) Mean $\pm$ SD	Supervisor (N = 97) Mean $\pm$ SD	t value	p value
45	Ability to organize ideas related to electrical/electronics enterprises	3.84 $\pm$ 0.37	3.84 $\pm$ 0.55	0.003	0.997
46	Ability to manage human resources	3.46 $\pm$ 0.57	3.29 $\pm$ 0.46	2.096*	0.037
47	Ability to plan daily activities in electrical/electronics workshop	3.64 $\pm$ 0.61	3.68 $\pm$ 0.62	0.491	0.624
48	Ability to accommodate and plan for changes in technology	3.39 $\pm$ 0.49	3.16 $\pm$ 0.53	2.924*	0.004
49	Skills in time management	3.56 $\pm$ 0.49	3.62 $\pm$ 0.50	0.735	0.463
50	Ability to organize concepts related to electrical/electronics enterprises	3.21 $\pm$ 0.49	3.29 $\pm$ 0.61	0.927	0.355
51	Ability to use feedback from customers and clients.	3.52 $\pm$ 0.50	3.53 $\pm$ 0.58	0.100	0.920
52	Ability to plan for a feasibility study for electrical/electronics business	3.60 $\pm$ 0.56	3.53 $\pm$ 0.80	0.712	0.477
53	Ability to plan for improvement of electrical/electronics products and services	3.63 $\pm$ 0.56	3.53 $\pm$ 0.77	0.974	0.331
54	Ability to manage material resources in electrical/electronics enterprises	3.53 $\pm$ 0.57	3.41 $\pm$ 0.85	1.075	0.284
55	Ability to make plans for payment of workers	3.67 $\pm$ 0.47	3.57 $\pm$ 0.70	1.146	0.253
56	Ability to plan for recruitments	3.36 $\pm$ 0.61	3.59 $\pm$ 0.76	2.258*	0.025
57	Ability to applying project management principles	3.31 $\pm$ 0.71	3.57 $\pm$ 0.71	2.487*	0.014

58	Skills in maintaining safety	3.40±0.49	3.37±0.74	0.305	0.761
59	Skills in identifying business Opportunities	3.51±0.57	3.32±0.79	1.790	0.075
60	Ability foster relationship among member of the organization.	3.39±0.77	3.09±0.85	2.432*	0.016
61	Ability to coordinating activities of events.	3.29±0.70	3.35±0.75	0.521	0.603
62	Ability to delegate tasks or responsibilities	3.33±0.76	3.15±0.74	1.567	0.119
63	Ability to set appropriate business goals	3.23±0.43	3.28±0.83	0.433	0.666
64	Ability to organize resource for goal attainment	3.06±0.58	3.12±0.67	0.694	0.488
65	Ability to demonstrate respect for others within the organization and customers.	3.46±0.68	3.28±0.89	1.522	0.130
Overall		3.45±0.22	3.41±0.37	0.837	0.404

* Significant at $p < 0.05$

Result in Table 6 showed that out of 21 items, 5 items had p-values less than 0.05 level of significance. The overall mean responses of managers and supervisors are 3.45 and 3.41 respectively, t-cal is 0.837 while p-value 0.404. Since the overall p-value of 0.404 is greater than 0.05 level of significance, this implies

that, the hypothesis which states that there is no significant difference between the mean response of managers and supervisions on managerial competencies needed by students of electrical /electronics technology education for self employment and economic development is accepted.

Table 7: Summary of the mean Responses of Managers and Supervisors on Entrepreneurial Competencies Needed by Student of Electrical /Electronics Technology Education for Self Employment and Economic Development.

S/N	Items statement	Status	N	$\bar{x}$	SD	t	P	Dec
1	ICT skills	Managers	85	2.66	0.91	0.78	0.434	NS
		Supervisors	97	2.56	0.84			
2	Financial skills	Managers	85	2.68	0.93	0.96	0.336	NS
		Supervisors	97	2.55	0.88			
3	Managerial skills	Managers	85	3.45	0.22	0.83	0.409	NS
		Supervisors	97	3.41	0.37			

NS = No Significant

Table 7 The data indicated that there is no significant difference between the mean response of managers and supervisors on entrepreneurial competencies like Information and Communication Technology skills, financial skills and managerial skills needed by graduating students of electrical/electronics technology education for self employment and economic development as all the items had the p-value greater than 0.05 level of significance. This therefore implies that all the items are required by the students to perform optimally on graduation, become for self employed and contribute their quota in economic development.

Discussion of Findings

The finding on objective one revealed that Information and Communication Technology skills are needed by students of electrical/electronics technology education to be able operate effectively in the world of work as successful entrepreneurs. The researcher was not surprised because Information and Communication Technology involves various kinds of electronic devices that aid communication such as computers, internet system devices, database systems, software resources among others which have brought about powerful and tremendous changes in all sectors of life. The findings of this study were in conformity with that of Okoye (2017), that identified Information and Communication Technology skills which graduates must possess for effective entrepreneurship practice to include: word processing skills, spreadsheets, database, electronic presentation, e-mail management, digital cameras, file management and windows explorer, video conferencing, installing computer software, scanner knowledge, computer related storage devices. Findings from Oluka (2016), also supported the findings of this study that, skills to rectify faults among other findings are the technical/ICT competencies needed by graduates of electrical/electronics (tech) education for self-employment. The results of t-test analysis showed that there is no significant difference between the mean response of managers and supervisors on Information and Communication Technology skills

needed by students of electrical /electronics technology education for self employment and economic development.

The findings in objective two revealed the gap in financial skills needed by students of electrical/electronics technology education for self employment and economic development. The researcher was not surprised with the result because the overall mean of 2.61 is more than 2.50, the index used to judge the required skills. Financial skills bothers on understanding the principles of preparing statement of accounts which entrepreneurs must have the knowledge of and be able to apply same in recording accounting information. It impacts on the young graduates the basic skills of book keeping, accounting, budgeting and expenditure control through the use of scale of preference in economics. The managers and supervisors were more satisfied with ability to maintain financial stability followed by skills to oversee the inflow of cash, ability to prepare trading, profit and loss account, ability to make business budget and skills to identify potential risk factor, while they were least satisfied with skills in pricing of materials. The findings of this study were in conformity with that of Olatunbosun (2006) found that the ability to properly observe IEET regulations, practice risk management, and effectively take financial decisions among others are required skills by the graduates for self employment. Adeoti (2014) also found that 20 financial skills were needed by graduating students of electrical installation and maintenance works in the technical colleges in Ondo State. The results of t-test analysis showed that there is no significant difference between the mean response of managers and supervisors on financial skills needed by students of electrical /electronics technology education for self employment and economic development.

The findings from objective three revealed that managerial skills are needed by graduating students of electrical/electronics technology education for self employment and economic development. Managerial skills are the tactics for effective management of human and material resource in order to enhance or achieve maximum output in an

organization. It is the process of allocating properly the human and economic resources of an organization for the purpose of producing goods and services as desired by the society through skilled application of the management functions. The managers and supervisors were more satisfied with ability to organize ideas related to electrical/electronics enterprises followed by ability to plan daily activities in electrical/electronics workshop, ability to make plans for payment of workers, skills in time management and ability to plan for improvement of electrical/electronics products and services, while they were least satisfied with ability to organize resource for goal attainment. The researcher was not surprised with the result because all the items had their mean above 2.50, and an overall mean of 3.43. The overall mean of 3.43 is far more than 2.50, the index used to judge the required skills. The findings of this study were in conformity with that of Oluka (2016) also found that the ability to accommodate and plan for changes in technology among others are the managerial competencies needed by graduates of electrical/electronics (tech) education for self-employment.

Conclusion

The findings of this study revealed different types of entrepreneurial competencies needed by students of electrical/electronics technology education some of which include Information and Communication Technology skills that expose the students to powerful and tremendous technological changes in all sectors of life, financial literacy impact on the students the basic skills of flow of cash and the use of scale of preference while managerial ability help in the process of allocating properly the human and economic resources of an organization for the purpose of producing goods and services as desired by the society through skilled application of the management functions. The possession of these competencies by the students will enhance effective performance of work and increase their efficiency.

Recommendations

1. Electrical/electronics educators should build teaching and learning of entrepreneurial competencies into coursework of their students.
2. Tertiary institutions should provide enabling environment for entrepreneurial competencies acquisition to be able to inculcate in the students those needed skills.
3. Government should provide all the necessary apparatus for the ease teaching and learning of entrepreneurial skills.

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