



Apprenticeship System and Labour Supply of Electrical Installation Artisans in Enugu State, Nigeria

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Abstract: The main purpose of the study was to assess the apprenticeship system and labour supply of electrical installation artisans in Enugu State. This survey study was carried out in Enugu State of Nigeria which involved 234 apprentices of electrical installation. A structured questionnaire was used for data collection. The instrument was face-validation by three experts and pilot tested on 15 apprentices in Anambra to determine its reliability. Cronbach Alpha reliability method was used to establish the internal consistency of the instrument and it yielded the overall reliability coefficients of 0.87. After the data collection, mean, standard deviation and t-test were used to answer the research questions and null hypotheses that guided the study. The study found that 14 modalities were needed for the admittance of apprentices, 10 attraction packages were found for facilitating enrolment into apprenticeship system, 11 motivation indices were found for apprentices in electrical installation, there was no significant difference between the mean responses of early apprentices and late apprentices on the attraction of apprentices' enrolment into apprenticeship system, and on motivation indices and instructional modalities. It was, therefore, recommended that the Government should grant loans to trained artisans to acquire essential equipment for the training and enterprising thereby boosting their output capacities.

Keywords: Apprenticeship system, labour supply, electrical installation and artisans

1. Introduction

Apprenticeship has always been one of the significant sources of labour supply for electrical installation artisans in Enugu state. According to Selamu (2019), artisans are trained individuals in different trade areas with little or no formal education. Artisans learn through observation, imitation of the actions of their masters in the effort to develop for themselves the relevant skills (Eneh, 2007; Young, 2017). Artisans carry out the installation of new electrical gadgets/equipment, maintenance operations, as well as the construction of some projects (Ohanu, 2013). Artisans, therefore, are those who acquire skills or are skilled in a particular craft. They have a low level of education and training. Artisans are trained informally through the apprenticeship system available in the informal sector.

Apprenticeship is one of the significant functional prerequisites for employment generation, poverty reduction and wellbeing improvement among youths in Nigeria. Before the advent of the formal system of education, the apprenticeship system has been in existence. The apprenticeship system, according to Ryan and Unwin (2001), is the informal relationship between the master trainer and apprentice through which mutual obligations and duties of each established by written agreement. Apprenticeship is a system whereby an experienced and skilled individual otherwise referred to as master trainer agrees to train an inexperienced individual known as an apprentice, in a prescribed occupation to acquire practical skills within a period. Achugo (2013) explained that an apprentice is a person who bonds himself or herself to serve and learn within a definite time from a master craftsman who undertakes to teach him/her a trade. Apprentices

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categorised into early apprentices and late apprentices in the apprenticeship system. Old apprentices are those that are at the beginning stage of acquiring skill in electrical installation ranging from one month to one year. Late apprentices are apprentices that have received the basic skills and have attained graduation stage pending on the training duration. In other words, apprenticeship is the process whereby the apprentice learns the process involved in a particular job to acquire the required skill under the tutelage of his/her master for some time depending on the agreement the apprentice reached with the master. It is also a process whereby students admitted to acquiring skills outside school, which will enable them to acquire skills while they are still in school. The apprenticeship system in an informal setting acknowledges an individual with a kin interest in learning any trade.

The apprenticeship system of admittance in an informal setting involves a contractual agreement undertaken by a master craftsman and apprentice whereby the apprentice are trained in a prescribed work process through practical experience under the supervision of the master craftsman. According to Akinseinde (2006) and Chipangura (2019), the admittance of apprentice does not have a clear pattern or requirements. It is usually an informal agreement between the master and the apprentice where the apprentices are trained in workshops. The shops where the apprenticeship practices are carried out typically located along the busy roads, hence mostly referred to as informal apprenticeship (Amasa, 2011). The friendly apprenticeship program are characterised by a lack of structured patterns for admittance and training. The master trainer admits young men who are interested in learning their trade as apprentices (Galvani, 2017). The apprentices usually are admitted based on a written or verbal agreement with their master trainer on their terms of training. These terms of training typically include among other things the period of training, cost of training, accommodation during the training period, terms of disengagement after full training, guarantor for good apprentice conduct during training, working rules, and other regulations. The admittance of apprentices is done based on the availability of vacancies and the number of secured training centres (Amasa, 2011).

The competencies of the master craftsmen sometimes determine the attraction of apprentices to enrolment into the apprenticeship system. Omotonwan (2011) stated that master craftsmen's skills are usually assessed by individuals, judging with the number of patronages they received from their customers. High patronage indicates, high competency and vice visa. Their patronage serves as an indicator of confidence and loyalty from the public who are interested in allowing their ward or relation to enrolling. The acquisition of skill by an apprentice in a given occupation or trade rest on the competency of the master craftsman. Master craftsman's competencies according to Agboola & Olaoye (2008) and Pilz, & Fürstenau, (2019) largely depend on vocational attributes such as technical skills, availability and use of tools and equipment, the mode of training employed in apprenticeship practise, educational background, experience, maturity and rate of patronage, management skills in directing and controlling of personal and material resources. A graduate apprentice are referred to as an artisan. The apprenticeship scheme is available in different trades such as blacksmithing, welding, electronic maintenance, electrical installation among others.

1.1 Electrical Installation

Electrical installation is one of the trades also available for an apprentice to learn and develop appropriate work skills. Work skills are specific skills required of the apprentices made up of three elements, namely knowledge, skills and attitudinal change towards electrical installation. According to Miller (2000), Electrical installation is an assembly of associated electrical equipment that fulfils a specific purpose and having certain coordinated characteristics. The author also defines electrical equipment as any item for such purposes as generation, conversion, transmission, distribution or utilisation of electrical energy such as machines, transformers, apparatus, measuring instruments, protective devices, wiring materials, accessories, and appliances. However, the 21st-century technology has brought changes in electrical installation equipment/machines which necessitates an improvement in techniques and methods to enable electrical installation apprentices to meet up with the specification of operation of modern equipment/machines for effective learning of electrical installation (Manatu, 2010). Some of the attitudinal changes involve self-consciousness while dealing with electrical appliances, knowledge of estimation, costing and electrical computational skills, and mounting, dismounting and manipulative skills. The innovations and changes in the field of electrical installations have made artisans limit themselves to acquiring skills pertaining to maintenance and installation of few electrical gadgets to become efficient in the maintenance and installation of such devices. The efficiency of an artisan in electrical installation can be evaluate in terms of its suitability, relevance and completion rate.

The rate of completion of apprentices has not been encouraging. No wonder Fuller and Unwin (2001) pointed out that there is a deficiency in the completion rate of apprentices, which may be one of the contributing causes of inadequacy in skills, location, or personal characteristics and technological developments. However, the completion of the apprenticeship programme is necessary to enable the apprentice to acquire adequate skills to function correctly on the job (Aubrey, 2010). On the one hand, the duration of the apprenticeship is either three or five years, but most apprentices drop out of the system due to harsh treatment by the master craftsman and lack of proper motivation to sustain them (Agboola 2008). Consequently, electrical installation apprentice rarely completes their apprenticeship training as a result of the hazardous work environment and lack of incentives (Alhassan, 2006). Hence, the apprenticeship system is

concerned with how to achieve sustained high levels of performance of apprentices which may involve giving close attention to the motivation of apprentices.

1.2 Motivation

Motivation refers to the complexity of forces, inspiring a person to intensify his/her desire and willingness to use his potentials to perform to achieve organisational objectives. Oboegbulem (2004) describes motivation as an inducement, incentive, inspiration, encouragement to incite an individual to action. Motivated behaviour are characterised by action and it are directed toward the satisfaction of a goal or a need. According to Chintaloo and Mahadeo (2013), motivation refers to the condition which influences arousal, direction, and maintenance to behaviour relevant in the work setting. The motivation of apprentice is a vital control tool and should, therefore, be adhered to attain advantages like increased apprentices' commitment, increased productivity and efficiency. After the recruitment of apprentices, the apprentices subsequently expect or demand other benefits as compensation for their time and effort towards the achievement of the master craftsman goals (Baldoni, 2005). Motivation is significant because even people with the required knowledge, skills, and abilities will perform poorly if they are not motivated to devote their time and effort to work. The proper motivation of apprentice leads to punctuality to work and adequate handling of facilities for training. The most effective training or learning method will depend upon the instructional modality employed.

Instructional modality can be referred to as a means of attaining a learning objective. Umunadi (2010) defined instruction as the set of events designed to initiate, activate and support learning in a human learner. Umunadi further states that instructional modalities are the most specific categories of teaching behaviours which are necessary for the procedural purpose and for structuring appropriate learning experiences for apprentices in electrical installation. Instructional modality according to Alio (2004) is the description of the learning objective, oriented activities, and flow of information between craftsmen and electrical installation apprentices. Onassanya (2000) stressed that the apprenticeship system electrical installation is a reasonable means of teaching skill. Still, it has its disadvantages, which include lack of programmed training and a well thought out curriculum. To the author, in most cases, the master craftsman teaches their apprentices as work comes and not as planned.

An empirical investigation by Agbola (2008) confirmed the inadequate supply of artisans in the electrical industry in Nigeria. Also, it lamented that there had been a decline in the rate of the number of electrical artisans as the avenue for training the artisans are few. With fewer number of artisans in the labour market, the wages available ones are demanding are increasingly high. The minimum resources available for training at the training centres were inadequate and the skills acquired by the graduates of mechanical trades of the NOAS were relevant to the job (Amasa, 2011). Agbola (2008) regretted further that the quality of training from the existing trade centre's needs much to be desired as theory as opposed to practice are emphasised with the result that graduates from such institutions are not skilled and are not technically competent. In addition, Eko (2000) revealed that owing to lack of adequate training by some master craftsmen, coupled with inadequate facilities and equipment, many technicians in various occupational areas performed below standard and expectation.

No matter the extent of training given to apprentices who graduate as artisans in electrical installation, if the training does not bring about self-reliance and productivity in the informal sector, the shortage of artisans for manpower development will continue to abound. Hence the needs for well trained, motivated, knowledgeable and skilled artisans that will effectively function in the field of electrical installation trade become very imperative. The training programme of electrical installation artisans will not only help in ensuring continuous usage of electrical appliances and gadgets by the society by offering prompt, effective maintenance services and installation activities as the case may be. But, they will also be gainfully employed or self-employed. Employment no doubt is one of the most vital instruments needed to speed off development and curb various societal menaces in Nigeria. The process of training apprentice's right from admittance to graduation becomes the motive of this study which is to assess the apprenticeship system and labour supply of electrical installation artisans in Enugu state. To guide this study, the following research questions were formulated:

- i. What are the admittance modalities of apprentices?
- ii. What is the attraction of apprentices to enrolment?
- iii. What determines the rate of completion of apprentices?
- iv. What are the motivation indices of apprentices in the electrical installation?
- v. What are the instructional modalities of apprentices?

2. Methodology

This study adopted a descriptive survey design. Descriptive survey research according to Ezeji (2004) is concerned with specifying the properties of educational and other phenomena. A descriptive survey design was considered suitable for this study since it solicited information from apprentices of electrical installation artisans in Enugu State. The study was carried out in Enugu State. Many electrical installation artisans and craftsmen were working for companies or individuals. Some of them are self-employed and could admit and train apprentices, thereby contributing to the supply of labour to the state or other states.

The population for this study consisted of 234 electrical installation apprentices drawn from the industrial based workers in registered electrical industries in Enugu State as at (2012-2014). There are 18 registered electrical industries in the state; each of these electrical industries had apprentices on training. The data sources were from the Enugu State Ministry of Commerce and Industries and Cooperate Affairs Commission (CAC). No sampling was necessary because all Electrical installation artisans undergoing apprenticeship training presently in Enugu State registered electrical industries were used.

The instrument was a structured questionnaire developed by the researchers based on the literature review. The instrument was made up of sections; A, B, C, D, E, F, G, H and I. Section A is on respondent's data while Sections B contains 15 items formulated to elicit information on admittance modality of the apprentice. Section C contained 10 items structured to elicit information on the extent of apprentices' enrolment in the apprenticeship system. Section D contained 10 items designed to elicit responses on the rate of completion of apprentices in the apprenticeship system. Section E, which contained 13 items sought information on motivation indices of apprentice in electrical installation in Enugu State. While Section F contained 13 items designed to elicit information on instructional modalities of apprentices in Enugu State. The questionnaire was structured to have a five Likert scale as follows: Strongly Agreed, Agreed, Undecided, Disagreed and Strongly Disagreed with values of 5, 4, 3, 2 and 1 respectively. To ensure the validity of the instrument, the structured questionnaire was subjected to face validation by three experts from the Department of Industrial Technical Education University of Nigeria, Nsukka. Each of the validates served with a copy of the instrument for validation. Based on their corrections and suggestions, amendments were made on the instrument before a final version was produced to be used for this study. The instrument was pilot tested in Nnewi, Anambra state on 15 Electrical installation apprentices. The researchers administered and collected the instrument with the help of three research assistants. Nnewi were chosen because it has the same level and pattern of work organisation as in Enugu State. Cronbach alpha were used to determine the internal consistency of the items in the instrument. The reliability coefficients for cluster A to F are 0.812, 0.91, 0.93, 0.81, and 0.86, respectively. The overall reliability coefficient of 0.86 were obtained. This showed that the instrument was reliable.

The researchers administered and collected the instrument with the help of two research assistants who were briefed by the researchers on how to administer the instrument. The respondents were given time to read through and indicate their responses and return the questionnaire. The data collected for this study were analysed using the statistical package for social sciences (SPSS). Mean was used to answer the research questions. Each item was interpreted based on the real limit of numbers. The hypotheses were analysed using inferential statistics (t-test) at 0.05 levels of significance. Any item with 0.05 and above was considered not significant therefore the hypothesis was accepted, while any item below 0.05 was considered significant hence the hypothesis was rejected.

3.0 Results

The result in Table 1 revealed that the respondents disagreed that apprentices must pass an oral interview before admitted for training and must present evidence of previous qualifications. Furthermore, item 13 recorded a mean value 2.86, which is within the real limit of numbers 2.50-3.49 indicating that the respondents were undecided on the apprentice being nominated from their local Government before admission. Data from Table 1 further indicated that items 1, 2, 4, 5, and 8 had their mean values ranged from 3.83-4.46. The mean values of the five items were within the real limit of numbers 3.50 – 4.49 indicating agreement on the items as admittance modalities of apprentices. Also, data from the table revealed that items 3, 9, 10, 11, 12, 14 and 15 had their mean values ranged from 4.53-4.72 indicating that the seven items revealed strong agreement as admittance modalities of apprentices. The analysis also indicated that the standard deviation ranged from 0.52-1.32 which is an indication that the respondents were not far from the mean and were close to one another in their responses. Therefore, it is an added reliability to the mean.

Table 1 - Admittance Modalities of Apprentice

Items	\bar{x}	SD	RMK
Apprentices completion of application form	4.27	0.77	A
Admission of apprentices is based on knowing the master trainer	4.29	0.55	A

Table 1 – (cont.)

Items	\bar{x}	SD	RMK
Written agreement between apprentices' parents and guardians with the master trainer.	4.55	0.55	SA
Admission of apprentices is based on the presentation of reliable guarantors	4.46	0.56	A
Apprentice engages in an oral agreement between apprentice parent and guardian with the master trainer	4.03	0.81	A
Apprentices must pass an oral interview before admitted for training	2.32	1.37	D
Apprentice must present evidence of previous qualification	2.39	1.19	D
Admission is based on the recommendation by the local Government of the apprentice	3.83	1.09	A
Admission is based on the availability of vacancies in the trades interest of apprentice	4.56	0.52	SA
Apprentice must pay for training fees before admitted	4.59	0.52	SA
Admission of an apprentice is based on lobbying/connection	4.61	0.54	SA
Apprentice is admitted based on the number of training centres available	4.72	0.55	SA
Apprentice is nominated from their local Government before admission	2.86	1.33	U
Apprentice is admitted based on cultural affiliation	4.53	0.54	SA
Apprentice is admitted based on religious affiliation	4.67	0.53	SA

Key: \bar{X} = Mean, SD= Standard Deviation, RMK=Remark, A=Agree, SA= Strongly Agreed, U= Undecided, D= Disagreed

Data in Table 2 revealed that three items (2, 4 and 6) out of 10 items had their mean values as 4.47, 4.48 and 4.32. The values of the three items were within the real limit of numbers 3.50 - 4.49, indicating that the three items are in agreement on the items as the attraction of apprentices' enrolment. Furthermore, the other seven items recorded mean values ranged from 4.58 - 4.77. The mean values of the seven items were within the real limit of numbers 4.50 – 5.49 indicating strong agreement on the items as the attraction of apprentices' enrolment. The analysis also indicated that the standard deviation ranged from 0.41-0.50 which is an indication that the respondents were not far from the mean and were close to one another in their responses. Therefore, it is an added reliability to the mean.

Table 2 - Attraction of Apprentices' Enrolment

Items	\bar{x}	SD	RMK
Patronage of customers to master trainer	4.73	0.44	SA
Competencies of the master trainer in repairs and installation of electrical gadgets	4.47	0.50	A
Quality of domestic installation offered to customers	4.71	0.45	SA
Mode of training employed in winding work	4.48	0.50	A
Certificate of completion awarded to apprentice	4.65	0.47	SA
Sponsoring of apprentice for advance training	4.32	0.46	A
Reduction of training cost of apprentice	4.75	0.43	SA
Recommending apprentice to local Government for assistance in providing tools and equipment	4.59	0.49	SA
Providing an increasing scale of wages during the training period	4.77	0.41	SA
Opportunity to advance in the apprenticeship programme	4.58	0.49	SA

Data in Table 3 revealed that two items (2 and 6) out of 9 items had their mean values as 4.47, and 4.35. The values of the two items were within the real limit of numbers 3.50 - 4.49 indicating that the three items revealed agreement on the items as determinant of completion rate of apprentices. Furthermore, the other seven items recorded mean values ranged from 4.58 - 4.86. The mean values of the seven items were within the real limit of numbers 4.50 – 5.49 indicating strong agreement on the items as determinant of completion rate of apprentices. The analysis also indicated that the standard deviation ranged from 0.34-0.56 which is an indication that the respondents were not far from the mean and were close to one another in their responses. Therefore, it is an added reliability to the mean.

Table 3 - Determination of Completion Rate of Apprentices

Items	\bar{x}	SD	RMK
Loyalty to the master trainer	4.57	0.51	SA
Strict obedience to rules	4.47	0.50	A
Demonstration of proficiency in the workplace	4.86	0.34	SA
Conformity to regulation	4.59	0.50	SA
Demonstration of competency to work	4.69	0.46	SA
Punctuality to work	4.35	0.56	A
Commitment towards training	4.71	0.46	SA
Exposure work to opportunity after training	4.58	0.52	SA
Being in working relationship with the master trainer	4.83	0.44	SA

Data in Table 4 revealed that items 2, 4, 6 and 11 had their mean values as 4.39, 4.41 and 4.38. This indicates that the respondents affirmed that commending apprentices for a job well done, master trainer meeting apprentice's daily needs, achieve his goals when working with the colleagues, and placing as a wage earner after training are motivation indices of apprentices in electrical installation. Furthermore, the other seven items recorded mean values ranged from 4.59 - 4.75. The mean values of the seven items were within the real limit of numbers 4.50 – 5.49 indicating more definite agreement on the items as motivation indices of apprentices in electrical installation. The analysis also indicated that the standard deviation ranged from 0.43-0.64 which is an indication that the respondents were not far from the mean and were close to one another in their responses. Therefore, it is an added reliability to the mean.

Table 4 - Motivation Indices of Apprentices in Electrical Installation

Items	\bar{x}	SD	RMK
Receiving monetary benefit for overtime	4.73	0.44	SA
Commending apprentice for a job well done	4.39	0.48	A
Master's positive approach to work	4.67	0.47	SA
Master trainer meeting apprentice's daily needs	4.41	0.50	A
Deriving joy working with the master trainer	4.65	0.47	SA
Achieve his goals when working with the colleagues	4.38	0.48	A
Offering special allowance/scholarship during the training program	4.75	0.43	SA
Recognition and gratification from the Government	4.59	0.49	SA
Parents supporting their participation in apprenticeship training	4.64	0.64	SA
Working as a team with peers	4.62	0.48	SA
placing as a wage earner after training	4.38	0.48	A

Data in Table 5 revealed that items 1 and 9 had their mean values as 2.52 and 1.78, respectively. The values of the two items were within the real limit of numbers 2.50-3.49 and 1.50 - 2.49; indicating that the respondents were undecided on the contents of instructional delivery are arranged sequentially and disagreed that E-learning were used for the teaching of the types, symbols, measurement, and characteristics of electrical gadgets. Furthermore, items 2, 4, 10, 12, and 13 recorded mean values ranged from 4.10-4.44 which is within the real limit of numbers 3.50-4.49 indicating that the respondents agreed with the items as instructional modalities for apprentices. Data from Table 6 further indicated that items 3, 5, 6, 7, 8 and 11 had their mean values ranged from 4.56-4.75. The mean values of the six items were within the real limit of numbers 4.50 – 5.49 indicating strong agreement on the items as instructional modalities of apprentices. The analysis also indicated that the standard deviation ranged from 0.43-1.02 which is an indication that the respondents were not far from the mean and were close to one another in their responses. Therefore, it is an added reliability to the mean.

Table 5 - Instructional Modalities of Apprentices

Items	\bar{x}	SD	RMK
The contents of instructional delivery are arranged sequentially	2.52	1.02	U
Method of learning is strictly done through observation	4.32	0.47	A
Apprentice is given the opportunity to ask questions on learning content	4.65	0.47	SA
Apprentice is taught based on the type of work received	4.39	0.48	A

Table 5 - (cont.)

Items	\bar{x}	SD	RMK
Learning materials are not selected at the appropriate time	4.75	0.43	SA
Some theory tasks are presented with projector	4.56	0.49	SA
Training method is done by demonstration	4.59	0.65	SA
Tasks performed are repeated over time before new tasks are introduced	4.62	0.48	SA
E-learning is used for the teaching of the types, symbols, measurement, and characteristics of electrical gadgets	1.78	0.63	D
Learning provided is developed step by step	4.10	0.54	A
Learning pattern is basically done by imitation and investigation	4.56	0.66	SA
Apprentice carries out all the learning activities by personal effort	4.43	0.49	A
Learning activities are done mostly by interaction among colleagues	4.44	0.62	A

Table 6 presents the summary of the t-test analysis of the responses of early apprentices and late apprentices on the extent of apprentices' enrolment into the apprenticeship system. Data from the table revealed that the items had their P-values ranged from .014 to .668, which are all greater than 0.05 level of significance. Therefore, the hypothesis of no significant difference were upheld. Hence, it can be inferred that early apprentices and late apprentices share identical opinions on the extent of apprentices' enrolment into an apprenticeship system.

Table 6 - T-Test for EA and LA on the attraction of Apprentices' Enrolment into Apprenticeship System

Items	\bar{X}_1	SD ₁	\bar{X}_2	SD ₂	P-value	Rmk
Patronage of customers to master trainer	4.65	0.48	4.82	0.38	.014	NS
Competencies of the master trainer in repairs and installation of electrical gadgets	4.38	0.48	4.59	0.49	.201	NS
Quality of domestic installation offered to customers	4.84	0.36	4.56	0.49	.070	NS
Mode of training employed in winding work	4.31	0.46	4.68	0.48	.090	NS
Certificate of completion awarded to apprentice	4.70	0.45	4.60	0.49	.085	NS
Sponsoring of apprentice for advance training	4.30	0.46	4.33	0.47	.668	NS
Reduction of training cost of apprentice	4.91	0.28	4.57	0.49	.090	NS
Recommending apprentice to local Government for assistance in providing tools and equipment	4.50	0.50	4.69	0.46	.034	NS
Providing an increasing scale of wages during the training period	4.86	0.34	4.67	0.47	.014	NS
Opportunity to advance in apprenticeship programme	4.47	0.50	4.71	0.48	0.64	NS

Table 7 presents the summary of t-test analysis of the responses of early apprentices and late apprentices on the motivation indices of apprentices that can improve skills acquisition in the apprenticeship system. Data from the table revealed that the items had their P-values ranged from .065 to .567, which are all greater than 0.05 level of significance. Therefore, the hypothesis of no significant difference was upheld. Hence, it can be inferred that early apprentices and late apprentices share identical opinions on the motivation indices of apprentices that can improve skills acquisition in the apprenticeship system.

Table 8 presents the summary of t-test analysis of the responses of early apprentices and late apprentices on the instructional modalities that can improve skills acquisition in the apprenticeship system. Data from the table revealed that the items had their P-values ranged from .065 to .710 which are all greater than .05 level of significance. Therefore, the hypothesis of no significant difference was upheld. Hence, it can be inferred that early apprentices and late apprentices share identical opinions on the instructional modality that can improve skills acquisition in the apprenticeship system

Table 7 - T-Test for EA and LA on the Motivation Indices that can Improve Skill Acquisition in Apprenticeships System

Items	\bar{X}_1	SD ₁	\bar{X}_2	SD ₂	P-value	Rmk
Receiving monetary benefit for overtime	4.65	0.48	4.82	0.38	.114	NS
Commending apprentice for a job well done	4.38	0.48	4.41	0.49	.567	NS
Master's positive approach to work	4.84	0.36	4.47	0.50	.065	NS
Master trainer meeting apprentice's daily needs	4.31	0.46	4.51	0.52	.132	NS
Deriving joy working with the master trainer	4.70	0.45	4.60	0.49	.085	NS
Achieve his goals when working with the colleagues	4.30	0.46	4.47	0.50	.110	NS
Offering special allowance/scholarship during training programme	4.91	0.28	4.57	0.49	.080	NS
Recognition and gratification from the government	4.50	0.50	4.69	0.46	.074	NS
Parents supporting their participation in apprenticeship training	4.86	0.34	4.39	0.79	.132	NS
Working as a team with the peers	4.47	0.50	4.78	0.41	.071	NS
placing as a wage earner after training	4.18	0.38	4.61	0.49	.094	NS

Table 8 - T-Test Analysis for EA and LA on the Instructional Modality that can Improve Skill Acquisition in Apprenticeships System

Items	\bar{X}_1	SD ₁	\bar{X}_2	SD ₂	P-value	Rmk
The contents of instructional delivery are arranged sequentially	2.42	1.05	2.63	0.98	.107	NS
Method of learning is strictly done through observation	4.23	0.42	4.41	0.51	.081	NS
Apprentice is given the opportunity to ask questions on learning content	4.70	0.45	4.60	0.49	.085	NS
Apprentice is taught based on the type of work received	4.27	0.44	4.53	0.50	.064	NS
Learning materials are not selected at the appropriate time	4.91	0.28	4.57	0.49	.170	NS
Some theory tasks are presented with projector	4.50	0.50	4.61	0.48	.090	NS
Training method is done by demonstration	4.86	0.34	4.28	0.76	.089	NS
Tasks performed are repeated over time before new tasks are introduced	4.47	0.50	4.78	0.41	.073	NS
E-learning is used for the teaching of the types, symbols, measurement, and characteristics of electrical gadgets	1.67	0.53	1.91	0.71	.094	NS
Learning provided is developed step by step	4.08	0.35	4.13	0.70	.500	NS
Learning pattern is basically done by imitation and investigation	4.62	0.50	4.49	0.80	.112	NS
Apprentice carries out all the learning activities by personal effort	4.30	0.46	4.58	0.49	.121	NS
Learning activities are done mostly by interaction among colleagues	4.22	0.56	4.70	0.58	.710	NS

4.0 Discussion

The findings of this study identified admittance modalities of apprentices such as completion of apprentice's application form, knowing the master trainer, written agreement between apprentices' parent or guardian with the master trainer, presentation of reliable guarantors, availability of vacancies in the trade interest of apprentice, and payment of training fees. The findings are in line with NDE (2011) that admittance of apprentices were done through requesting candidates to fill the application form to provide their data, vocational interest, and educational background; based on the availability of vacancies, the number of secured training centres and the availability of fund. Similarly, findings of the study agreed with Akinseinde (2006) and Chipangura (2019). They posited that admittance of apprentice does not have formal written or oral interviews, but usually an informal agreement between the master and the apprentice. This implies that master

craftsmen, NDE administrator and the Government need to adopt the modalities of admitting apprentices into the apprenticeship system.

Findings of this study revealed the indices that attracts and facilitates apprentices' enrolment such as patronage of customers to master trainer, competencies of the master trainer, quality of domestic installation offered to customers, mode of training employed in winding work, certificate of completion awarded to apprentice and to sponsor of apprentice for advance training among others. Also, the corresponding hypothesis showed there was no significant difference between the mean responses of early apprentices and late apprentices on the attraction of apprentices' enrolment into the apprenticeship system. These findings are in line with Omotonwan (2011) who maintained that the extent of apprentices' enrolment into the apprenticeship system were determined by the competencies of the master craftsmen and assessed by individuals, judging with the number of patronages they received from their customers. The findings of this study also agree with Agboola and Olaoye (2008) and Pilz, & Fürstenau, (2019) who observed that attraction of apprentices to master craftsman depends largely on his vocational characteristics such as technical skills, availability and use of tools and equipment, the mode of training employed in apprenticeship practise, educational background, experience, maturity and rate of patronage, management skills in directing and controlling of individual and material resources. The implication of the finding is that the respondents did not significantly differ in their opinions.

The findings of this study revealed the determinants of the rate of completion of apprentices. These include strict obedience to rules, loyalty to the master trainer, demonstration of proficiency in the workplace, conformity to regulation and demonstration of competency to work. Other determinants revealed are punctuality to work, commitment towards training, and exposure work to opportunity after training and being in working relationship with the master trainer. These findings are in line with Adeyemo, (2009) who pointed out that there is a deficiency in the completion rate of apprentices' where/when there are imbalances caused by inadequacy in skills, location, or personal characteristics and technological developments. These imply that these indices and facilities are essential in any informal training of apprentice's trade and therefore be taken into consideration.

The findings of this study identified some motivational indices of apprentices in electrical installation. These include monetary benefit for overtime, commending apprentice for a job well done, master's positive approach to work, master trainer meeting apprentice's daily needs, deriving joy working with the master trainer, and achieve goals when working with the colleagues. Other indices identified are: offering special allowance/scholarship during the training programme, recognition, and gratification from the Government, parents supporting their participation in apprenticeship training, working as a team with the peers and placing trainees as a wage earner after training. It was also revealed that there was no significant difference in the mean responses of early apprentices and late apprentices on motivation indices of apprentices that can improve skills acquisition in the apprenticeship system. These findings are inconsonant with Baldoni, (2005) who asserted that motivation gives behaviour purpose, direction and rapidly change the workplace. The findings are also in line with Ladebo (2005) who carried out a study on poor attitude to work among civil servants in Nigeria and observed that poor staff motivation generated high absenteeism, low punctuality, indolent to work and fraudulent behaviour. The finding implies that the respondents did not significantly differ in their opinions.

The findings of this study revealed some instructional modalities for apprentices. These include; learning were strictly done through observation, opportunities a given to ask questions during learning, apprentices are taught based on the type of work received, learning materials were selected at the appropriate time, training method were done by demonstration, tasks performed are repeated over time before new tasks are introduced, learning provided is developed step by step, learning pattern were basically done by imitation and investigation, apprentice carries out all the learning activities by personal effort, and learning activities are done mostly by interaction among colleagues. The result of the hypothesis indicated that there was no significant difference in the mean responses of early apprentices and late apprentices on the instructional modality that can improve skills acquisition in the apprenticeship system. These findings agree with Amoyedo, (2006) who pointed that the trainers' role is to pass facts, rule or action sequences unto trainees in the most direct way possible in the form of lecture, demonstration, and teamwork; consisting of explanations, opportunities for practice and feedback. The finding implies that the respondents did not significantly differ in their opinions.

5.0 Conclusion

Based on the findings of the study, it can be concluded that admittance of apprentices were based on modalities, such as completion of the application form and written agreement between apprentices and master trainers. Also, the findings show that the attraction of apprentices to enrolment into an apprenticeship were usually facilitated, facilities for training and instructional modalities are essential for training and monetary benefit for overtime form part of motivation indices of apprentices. Therefore, it was recommendations that Master trainers in the apprenticeship system should use the identified modalities to improve the training of electrical apprentices, National Directorate of Employment (NDE) administrators should employ qualify instructors to train apprentices, Relevant training facilities should be supplied to various apprenticeship training centres. At the same time, Government should grant loans to trained artisans to acquire essential equipment for the training and enterprising thereby boosting their output capacities.

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References

- [1] Achugo, E. (2013). Labour and Trade Unions towards a new society, *African J. of Stability & Development*, 7(2), 76-93
- [2] Adeyemo, S. A. (2009), Understanding and Acquisition of Entrepreneurial Skills: A pedagogical Reorientation for classroom teacher in science education retrieved on June 10, 2010, from <http://www.tused.org>.
- [3] Agboola, T. (2008): Apprenticeship and Manpower Training Strategy in Nigeria Building Industry. *Quarterly Journal of the Local Self Government Institute, India, LVI 4222*, 278-287.
- [4] Agboola, T. & Oloaoye, O.O. (2008). Labour Supply and Manpower Development Strategies in the Nigerian Building Industry. *First Departmental Staff/Student Seminar, Department of Urban and Regional Planning, University of Ibadan*, 15th January 2008.
- [5] Akinseinde, S.I. (2006). Professional Growth of Vocational and Technical Teachers: Challenge, Benefits and Concern. *Educational News* (11),
- [6] Alhassan, I. D. (2006). *Entrepreneurship Education for Vocational and Technical Students*, Kano: Benchmark Publishers Limited.
- [7] Alio, A.N. (2004). Entrepreneurial competencies required by the electronics craftsmen for effective performance. *Journal of Education for Professional Growth (JEPG) 1(1)*, 18-23.
- [8] Amado, S. (2019). *Assessment of factors affecting the contribution of technical and vocational education and training on job creation, between 2014-2018 at Durame Town*. Unpublished dissertation. Addis Ababa Science and Technology University.
- [9] Amasa, G.D. (2011). *Assessment of the National Open Apprenticeship Scheme of the National Directorate of Employment in North-Central Zone Nigeria*. Unpublished Thesis. Nsukka: University of Nigeria, Library.
- [10] Amoyedo, M. B. (2006), *Management skills required by Secondary School Graduates for Employment in Coca Production Enterprises in Ondo State*. M. Ed. Thesis, Department of Vocation Teacher Education, University of Nigeria, Nsukka.
- [11] Aubrey, B. (2010). *Managing your aspirations: Developing personal enterprise in the global workplace*. New York: McGraw-Hill. Pp 9.
- [12] Baldoni, J., (2005). Motivation Secrets. Great Motivation Secrets of Great Leaders. http://govleaders.org/motivation_secrets.htm
- [13] Chintaloo, S & Mahadeo, J. (2013). *Effect of Motivation on Employees' Work Performance at Ireland Blyth Limited*: Proceedings of 8th Annual London Business Research Conference Imperial College, London, UK, 8 ISBN: 978-1-922069-28-3.
- [14] Chipangura, N. (2019). "We are one big happy family": The social organisation of artisanal and small-scale gold mining in Eastern Zimbabwe. *The Extractive Industries and Society*, 6(4), 1265-1273.
- [15] Eko, M. J. (2000). Assessment of the provision made for the training of Artisans and technicians in manpower development in Akwa Ibom State. *Nigeria Journal of Vocational Technical Education. 1(1)*, 27-31.
- [16] Eneh, O. C. (2007), Small and Medium Enterprises in South-East Nigeria: Problems and Solutions, Enugu: *WIPRO International*, pp. 134.
- [17] Ezeji, S. C. O. A (2004). *Basic Principles of Research in Education*. Enugu: Cheston Agency Ltd.
- [18] Fuller, A. & Unwin, L. (2001). Context and meaning in apprenticeship: Illuminating workplace learning. *Paper presented at TLRP International Workshop, University College Northampton*.
- [19] Galvani, R. G. (2017). *The Apprentice's Tale: entry to multiple communities of practice for working class boys* (Doctoral dissertation, UCL (University College London)).
- [20] Ladebo, O. J. (2005). Effects of Work-related Attitudes on the Intention to Leave the Profession: An Examination of School Teachers in Nigeria. *Educational Management Administration & Leadership, Vol. 33, No. 3*, pp. 355-369.

- [21] Manatu, O. (2010). Electrical Installation Definition Amendment. Ministry of Economic Development New Zealand. <http://www.energysafety.govt.nz/tempaltes/page>
- [22] Miller, H. A. (2000). *Third Year Electrical Installation Practice 4th Ed.* London. Edward Arnold Publishers Ltd.
- [23] Ohanu, I. B. (2013). *Maintenance practices required for liquid crystal display (LCD) Television by Electronic Technicians in Anambra state.* Unpublished dissertation. Nsukka: University of Nigeria, Library.
- [24] Oboegbulem, A. (2004). *Teacher Stress and Management.* Lagos: Vista Books Limited.
- [25] Omofonmwan, G. O. (2011). *Modalities for Enhancing Roadside Metalwork Apprenticeship Practice in Edo State, Nigeria.* Unpublished Thesis. Nsukka: University of Nigeria, Library.
- [26] Onasanya, S. A. B. (2000): *Effective Personnel Management and Industrial Relations.* Lagos: G.M.D.
- [27] Onoh, B. C. E. C. (2006). *Entrepreneurship Education needs of Self-employed artisans and craftsmen in Enugu Urban.* Unpublished Ph.D. thesis. Department of Vocational Teacher Education, University of Nigeria, Nsukka.
- [28] Osuala, E. C. (2004). *Principles and Practices of small business management in Nigeria.* Enugu: Cheston Agency Ltd.
- [29] Pilz, M., & Fürstenau, B. (2019). Duality and Learning Fields in Vocational Education and Training: Pedagogy, Curriculum, and Assessment. *The Wiley Handbook of Vocational Education and Training*, 311-327.
- [30] Ryan, P. & Unwin, L. (2001) 'Apprenticeship in the British 'Training Market'', *National Institute Economic Review*, No.178: 99-114.
- [31] Umunadi K.E. (2010). Acquisition of Skills and Competencies by Technical Education Teachers as an Instrument for National Growth in Nigeria. *Journal of Qualitative Education* (6), 1-5.
- [32] Young, M. T. (2017). Nature as Spectacle; Experience and Empiricism in Early Modern Experimental Practice. *Centaurus*, 59(1-2), 72-96.