Skill Development and Apprentices Performance in Aluminium Sub-Sector: A Way Out of Nigeria Economic Quagmire

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Abstract

luminium products and its fabrications seem to be changing continuously over time. ineffective acquired knowledge resulting t substandard products fabrication created a negative difference. This on the long run damages the image of the organisation, by hampering customer loyalty. It is based on this problem that the researcher explored into the relationship that exist between skill development and performance of apprentices in aluminium fabrication (specifically, the researcher tried to delve into the nature and type of relationship that exist between skill acquisition and apprenticeship competence, in product fabrications). Correlation survey research design was adopted. data was sourced from primary and secondary sources with the aid of structured questionnaire. Karl Pearson's product moment correlation coefficient was employed in analyzing data. It was discovered that skill acquisition (Skill development) has a significant positive relationship with apprentice competence (apprenticeship performance). From the findings, it was concluded that proper skill development created room for perfect aluminium product fabrication. This resulted to effective product fabrication that has stood out among the pairs in the aluminium industry. The researchers therefore recommended that apprentices should be impacted with both theory and practical skills that are involve in knowledge acquisition SSCE should be a pre-requisite for admitting apprentices into the programme.

Keywords: *Skill development, Skill acquisition, Apprentice performance and Apprentice competence.*

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Background to the Study

Over the years, creation and preservation of skill has become a key tool in accelerating competence and enhancing apprentices' capabilities to respond to market changes in terms of product fabrication (Bryan, 2004), wherein apprentices' skills and competences are appropriately deployed to optimize performance, is a critical and difficult task. Identifying and developing apprentices who have potential, like every other vital strategic function, is a demanding process that is equal parts in Arts and Science (Klein & Miles, 2003). Skill is very important in the life of every human being. The reason why many technicians earns more than some university graduates is because the technicians acquire more practical skills than the theories, unlike the graduates who were fed with theoretical experiences while in the universities. It can take you to places you do not expect you will find yourself. Skill acquisition is the ability to be trained on a particular task or function and become expert in it. It is a pity that there is "huge" parading of unemployment in many parts of the world today especially in Nigeria. This is giving many youths in different parts of the world today a sleepless night. It is one of the causes of rapid growth in crime in many parts of the world. But do you think there is any relationship between someone who has acquired skill on how to perform a particular job and make money from it and unemployment? The answer is no because the skill he has acquired can always speak for him/her.

Today, there are many unemployed graduates in the country. This is partly as a result of our long system of education that is more of grammar and not much practical learning. It is evident that the highest number of unemployed is found in the practical learning. It is evident that the highest number of unemployed is found in the African continent. The truth remains that the major causes of the unemployment among these vibrant youths is lack of skill to back up what they learnt from their institutions of learning. When these graduates were still in school, they did not border to learn at least one single skill, maybe that which is related to graphic designing, typing, hair dressing, electrical maintenance, aluminium product fabrications and others. If they have learnt any skill at all, the rate of unemployment will reduce among them. "Skill person can survive in any environment". As water is very essential to human life, so is skill training and acquisition needed in the life of every serious-minded human being. Skills can do a lot of great work in the life of every living soul. Lack of entrepreneurial skills is one of major causes of corruption.

The importance of entrepreneurial skill development in our society today cannot be over emphasized because gone are the day when jobs were available everywhere both in the private and public sectors of the economy and employers go about looking for potential graduates for employment. The question of choice of job or the type of employer the one would like is now a story after graduation is now thing of the old. White collar jobs are scarcely available, hence may graduates are desperate to get any job to keep body and soul together. Indeed, there is paradigm shift in the labour market. Therefore, the need to acquire and develop specific entrepreneurial skills cannot be neglected because entrepreneurship is vital to creating employment and indeed a special form of employability for graduates. Empowerment helps individuals or groups to fully access personal/collective power through knowledge, skills and motivation for proper functioning in their society and contribution to the economy.

Statement of the Problem

Aluminium products and its fabrications seem to be changing continuously over time. ineffective acquire knowledge resulting to substandard products fabrication created a negative difference. This on the long run damages the image of the organisation, by hampering customer loyalty. It is based on the problem that the researcher explored into the relationship that exists between skill development and apprentices performance in product fabrication.

Objective of the Study

The broad objective of the study is to determine the nature of relationship that exist between skill development and apprenticeship performance in product fabrication in the aluminium industry. Specifically, it was decided to ascertain the nature of relationship that exists between skill acquisition and competency in product fabrication in the aluminium industry.

Research Question

The research question for this study is: What nature relationship exists between skill development and apprenticeship performance in product fabrication in the aluminium industry.

Research Hypothesis

The hypothesis of this research is rested on the following premise:

Ha: A significant positive relationship exists between skill acquisition and competency in product fabrication in the aluminium industry.

Significance of the Study

This study is importance in academic endeavour as it has created room for generalization based on the aforementioned premise. It is equally of importance to learners (apprenticeship programme) in aluminum product development, fabrication and finishing.

Scope of the Study

This study covered all the apprentices in aluminium skill acquisition programme in Edo State. Only apprentices who have minimum of SSCE certificates were eligible to participate.

Limitations of the Study

Only the major limitation will be stared and that is the ability of the researchers to retrieve all the copies of questionnaire administered.

Literature Review Conceptual Review Skill Development

Skill development moves along a continuum from a novice to an expert, through the three stages of skills acquisition (Abbas & Yagoob, 2009). The speed at which a new skill is developed is dependent on a number of variables, as Dixon (1999) explained. These include personal characteristics such as confidence, ability, and genetics (Burgoyne, 2006).

Apprentices Performance

People are critical resources of an organisation; proper management of apprentices who are the blood of an organisation is a must. The success of any technology based organisation depends on its apprentices' contribution and commitment (Baum & Kokkranikal, 2005). In today's highly competitive and complex environment, the growth and success of an organisation cannot be measured alone on the profits which it earns, the talent which an organisation possess in the form of its apprentice's effectiveness and competencies decides its success (Lockwood). The organisation should follow a holistic approach for skill management, right from selection of apprentices, to their retention, development and promotion to higher levels.

Skill Acquisition

As Champathes (2006) posited, 'skill acquisition is affected by the environment'. This includes the type of skill itself, as well as the types of feedback provided and practice method chosen'. Vital to learning a new skill is feedback and assessment of performance in order to identify improvements in performance and success of teaching apprentices (Chan, 2003). Assessment of a skill can be objective or subjective through, and the validity or reliability of a performance measure is crucial in deciding how to respond (Collins, 2004). The characteristics of the learner are as varied as any personal characteristics. These characteristics of a person affect their capacity to and speed at which they learn a new skill (David, 2009). The characteristics can include personality traits, such as a willingness to learn and accept criticism. They also include hereditary factors, such as your height or body type. Confidence levels will also affect the rate at which a new skill is learnt.

Competency in Product Fabrication

At the heart of any successful activity lies a competence or a skill. In today's competitive world, it is becoming particularly important to build on the competitive activities of business (Sanghi, 2007). There has been much more thinking about business strategy over the past three decades, particularly regarding what competencies a business needs to have in order to compete in a specific environment. Organisations that possess inherent strengths that are core competencies are likely to have an edge over others (Sanghi, 2007). More often than not, competencies are an organisations most important resources because they are valuable, rare and difficult to imitate. Organisations can capitalize on this resource; after identifying them (competency mapping), can make decisions about how to exploit them and also learn how to expand them.

Apprenticeships and traineeships can be completed before the scheduled end date of the training contract if the apprentice or trainee has been assessed as competent and issued with a qualification by their training organisation. This is known as competency-based completion. As for other types of variations to an apprenticeship or traineeship, competency-based completion must be supported by both the employer and the apprentice/trainee. Where one of the parties supports competency-based completion and the other party does not. Training services NSW can assist them to negotiate an agreed completion date. Where necessary, disputes about competency-based completion that cannot be resolved may be referred to the vocational training tribunal for determination.

Theoretical Framework

This research is underpinned with the theory of cognitive apprenticeship by Collins, Brown and Newman (1989). It is a theory of the process where a master of a skill teaches that skill to an apprentice. Constructivist approaches to human learning have led to the development of a theory of cognitive apprenticeship. This theory holds that masers of a skill often fail to take into account the implicit processes involved in carrying out complex skills when they are teaching novices. To combat these tendencies, cognitive apprenticeships are designed among other things, to bring these tacit processes into the open, where students can observe, enact, and practice them with help from the teacher'. This model is supported by Albert Bandura's (1997) theory of modeling which posits that in order for modeling to the successful, the leaner must be attentive, must have success to and retain the information presented must eb motivated to learn, and must be able to accurately reproduce the desired skill.

Empirical Review

Other researchers have investigated into studies that are related to the topic being investigated some of this works are empirically reviewed hereunder. Hazril and Abdullah (2013) carried out a study on competency level of employability skills among the apprecntices of the national dual training system a comparative analysis of industry perception by company status. This study examined the competency level of employability skills among the apprentices of the National Dual Training System (NDTS) according to the perception of the employers in the industry. The study sample comprised of 56 industrial employers who had given apprentices practical/hands on training in 2012. Respondents were the industrial bosses in various sectors and different types of companies which were directly involved in training the NDTS apprentices in that particular year. 63 percent of the respondents were from small and medium sized industries (SME). 23 percent were Multi National Companies (MNC) and 14 percent were government linked companies (GLC). The data was obtained via survey and interviews. The result showed that overall competency level of employability skills of the apprentices was shown to be at a moderate level. The study's findings for the differences of the type of company suggested that the mean scores for the employability skill competency among the apprentices in the MNC companies is significantly higher (M=4.0, SD = 0.125) than the GLC companies (M = 3.50, SD = 0.227) and the SME companies (M=3.14, SD=0361). The one-way ANOVA test demonstrated a significant difference according to the types of companies which train the apprentices in 2012, F(2,53) = 45.6, P<0.05. As there is a significant difference following the type of companies, the test of Post Hoc Schaffer was not conducted to evaluate the source of differences in further detail.

Plani (1998) research on skill acquisition and transfer: the effect on performance. The study was designed to examine the effect of amount of training on the specificity of skill acquisition and transfer. Within the theoretical framework of two contemporary theories of skill acquisition, Anderson's ACT theory (1982, 1987), and Logan's instance theory of automisation (1988, 1990), the study extends research by Grelg and Speelman (in press) that demonstrated skills can be both general (i.e. can apply beyond the training experience) and specific (i.e. are limited to training experiences). The experiment was divided into training and transfer phases. The results were similar to those reported by Greig and Speelman in that participants displayed evidence that both general and specific skill had been acquired. Furthermore, those participants who received the greatest amount training also experienced the greatest amount of disruption in performance when presented with the transfer task. These results suggest that while the participants' skill was not totally specific to the items experienced in training. It was also not completely generalisable to different tasks. Results failed to differentiate between the three groups' performance in the transfer phase of the experiment as a function of the amount of practice each group received during the training phase. Reason for this lack of difference between the group's performance on the transfer task are discussed in the context of future research implications. The findings of the study are discussed in relation to the ACT* theory and the instance theory, with the conclusion that the results provide the greatest support for the ACT* theory.

Udu (2015), researched an apprenticeship orientation and performance of Micro Businesses in Ebonyi State, Nigeria. The study investigates the nexus between apprenticeship orientation and the performance of micro businesses that provides the direct training services in Ebonyi State, Nigeria. The study is necessitated because in the world of work, apprenticeship has been a smooth means of inculcating requisite skills and trades to apprentices for which the benefits micro businesses drive from apprenticeship have not been explored adequately. Consequently, extant literatures were reviewed with the social learning theory by Bandura (1963) as the theoretical underpinning. The theory posits in part that learning (skill acquisition in this study) is a cognitive process that takes place in a social context and can occur purely through observation or direct instruction, even in the absence of motor reproduction or direct reinforcement. The methodical approach was the exploratory survey research design aimed at clarifying new insights ot the study of apprenticeship as it benefits the organisation with a population of 52.291, a sample size of 301 firms were chosen and administered with a structured questionnaire. The analytical tool adopted was the Pearson's product moment correlation and p-value. The result shows positive values for LSQ (r=38.2%), LFE (r=88%), LFS (r=48%), EQA(r=10.1%) and a negative value for AoA (r=.55%). The implication is that micro businesses engagement of youthful apprentices enhances their positive performance and should be explored by more micro businesses.

Research Method

Research Design

This study employed correlation survey design. The design helps the researcher to describe the event in question using the resulting data to explain and predict the given situation ('stanworth, 2012). It gathers consistently the data of occurrence to test hypothesis, make prediction or get meaning and implementation of the situation (Tanzil, 2012).

Population of the Study

S/N	Local Government Area	No. of Apprentices
1	Ankpa	17
2	Dekina	23
3	Ibaji	15
4	Idah	28
5	Igalamela	32
6	Ofu	15
7	Olamaboro	10
8	Omala	12
	Total	152

Table 1: Apprentices based on local government in Kogi State

Source: Field Survey 2023

Table 1 above shows a list of 8 local governments in Kogi East and the respective number of apprentices, their population figure and proportions are given below:

Table 2: Populatio	on of apprent	tices in each local	governmentand	their percen	tage
1	11		0	1	0

S/N	Local Government Area	No. of Apprentices	Percentages
1	Ankpa	17	11.18
2	Dekina	23	15.13
3	Ibaji	15	9.87
4	Idah	28	18.42
5	Igalamela	32	21
6	Ofu	15	9.87
7	Olamaboro	10	6.58
8	Omala	12	7.89
	Total	152	100%

Source: Field Survey 2023

Table 2 above shows the percentages for all the apprentices/local government. The population is 152 persons as basis for this research work.

Sample Size

Sample size consists of hundred and ten (110) respondents from all the local governments, which are randomly selected from the population. Taro Yamane formula was used to determine the sample size thus:

$$n = \frac{N}{1 + N(e^2)} = \frac{N}{1 + 152(0.05)^2} = \frac{152}{1.38} = 110.145 = 110$$

Therefore, the sample size is 110.

Sampling Techniques

This research made used of probability sample technique called simple random sampling technique. This technique gives equal chances to variables in the study scope of being selected or rejected in the sample. In selecting the sample units from the population, according to Omoniyi (2009), equal chances were given to the population items of being included in the sample.

S/N	Local Government Area	No. of	Sample Size	Proportions
		Apprentices		
1	Ankpa	17	12	0.11
2	Dekina	23	17	0.16
3	Ibaji	15	11	0.10
4	Idah	28	20	0.18
5	Igalamela	32	23	0.21
6	Ofu	15	11	0.10
7	Olamaboro	10	7	0.06
8	Omala	12	9	0.08
	Total	152	110	1.00

Table 3: Sample sizes for local government and proportions

Table 3 above shows the proportions for all the local governments' samples.

Sources of Data

This research employed primary and secondary sources of data. The primary source is the questionnaire while the secondary sources are the relevant books, journals and company's books.

Research Instrument for Data Collection

This research employed questionnaire as the method of data collection. The questionnaire was a structured one arranged in a 5-point likert scale ranging from Strongly agree (5), agree (4), strongly disagree (3) disagree (2) undecided (1).

Validity of Instrument

Face validity and content validity were employed in validating the instrument of data collection. Face validity was based on the 'clarity of the question and how logically structured the questions were (Omoniyi, 2009). The content validity was achieved by sending copies of questionnaire to validators to ensure that the instrument contained all

the aspect of the variables (coverage) being tested and to also make sure that the questions are clear, unambiguous and not subject to misinterpretation. The experts made input and corrections were made before they certified it valid.

Reliability of the Instrument

Reliability statistic was determined using a test retest method. 30 copies of questionnaire representing 27% of the sample size were distributed to the respondents and it as distributed in two different occasions within an interval of one week. The respondents here were employees of Osy aluminium company.

S/N	Test	Re-	x-y=di	di ²	Test	Re-test	x-y=di	di ₂
		test						
1	15	14	1	1	14	15	-1	1
2	17	15	2	4	12	13	-1	1
3	14	13	1	1	13	15	-2	4
4	14	13	1	1	16	14	2	4
5	18	19	-1	1	12	11	1	1
6	13	12	1	1	11	12	-1	1
7	20	19	1	1	10	11	-1	1
8	17	15	2	4	10	12	-2	4
9	12	15	-3	9	18	15	3	9
10	17	15	2	4	10	11	1	1
Total				27				27

Table 4: Reliability Test Table

Source: Field survey, 2023

$$1 = \frac{6\Sigma dj^2}{n(n^2 - 1)} = 1 - \frac{6(27)}{10(100 - 1)} = 1 - 0.1636 = 0.8364 = 0.84$$

Computation of reliability for negative responses:

$$1 = \frac{6\Sigma dj^2}{n(n^2 - 1)} = 1 - \frac{6(27)}{10(100 - 1)} = 1 - 0.1697 = 0.8364 = 0.84$$

$$\frac{0.84 + 0.84}{2} = \frac{1.68}{2} = 0.84$$

The correlation coefficient of 0.84 shows that the instrument used was reliable.

Method of Data Analysis

The data were analyzed using the Pearson's Product Moment Correlation Coefficient. This was used in order to determine the nature of relationship that exists between the dependent and independent variables (burns, 2004). The level of significance used was 5% while 95% confidence interval was adopted.

Scoring of the Instrument

The Rensis Likert scoring method was used for the scoring of the questionnaire. The researcher adopted the five-point Likert style of scaling research instrument so as to generate responses from participants. The following scales were attached to the research instrument.

- 5 Strongly Agree
- 4-Agree
- 3 Undecided
- 2 Disagree, and
- 1-Strongly disagree

Data Presentation and Analysis Data Analysis

In line with the hypothesis formulated, data were presented and analyzed using appropriate testing statistic.

Decision accept when mean response is greater than mean weight otherwise reject.

Key

D = Decision, Ai – Accept; R – Reject, n – number of analyzed questionnaire and X – mean.

Table 5: Questionnaire Analysis

S/N	Questionnaire Items	Responses							
		SA	Α	SD	D	UD	Ν	x	Di
		5	4	3	2	1			
	Skill acquisition (skill								
	development)								
1	Modeling: Tasks were	25	25	24	21	5	100	3.44	Ai
	demonstrated explicitly so								
	apprentices can experience.								
2	Coaching: Novice performances	26	25	25	24	-	100	3.44	Ai
	were observed to provide feedback.								
3	Scaffolding: There were strategies	35	15	13	37	-	100	3.49	Ai
	to support apprentices learning.								
4	Reflection: Apprentices problem	21	30	18	29	2	100	3.39	Ai
	solving strategies are compared								
	with experts and are willing to								
	learn and accept criticism.								
5	Exploration: Apprentices were	19	31	33	12	5	100	3.47	Ai
	allowed to solve problems on their								
	own.								
	Apprentices' performance								
	(competencies in product								
	fabrication)								
6	Apprentices can take accurate	21	29	23	23	4	100	3.40	Ai
	measurements and apply it to								
	material cutting.								
7	There is competency in terms of	26	24	22	25	3	100	3.45	Ai
	product mitering.								
8	Apprentices are able to install	26	22	24	22	6	100	3.45	Ai
	products on site with little								
	supervision								
9	Efforts yield quality output with	24	21	22	21	1	100	3.24	Ai
	cost effective operations.								
10	Final outputs usually conform to	27	23	22	25	3	100	3.46	Ai
	customers specification.								

Source: Field Survey, 2023

In the correlation test table, the figures in the Strongly Agreed (SA) and Agreed (A) were merged together while that of Strongly Disagreed (SD) and Disagreed (D) were also merged together to give X and Y value respectively.

Y2 S/N Х Υ X2 XY Total

Table 6: Correlation Analysis

Source: Field Survey, 2015

Product Moment Correlation Coefficient (r) is calculated thus:

$$\begin{split} r &= \frac{N\Sigma xy - \Sigma x\Sigma y}{[N\Sigma x^2 - (\Sigma x)^2] [N\Sigma y^2 - (\Sigma y)^2]} \\ &= \frac{10(22841) - (491)(464)}{(10(24141) - 491(491))((10(21574) - (464)(464)))} \\ &= \frac{316}{146076} = \frac{316}{382.20} = 0.8268 \end{split}$$

Summary of Findings

The results of the analyzed data should be positive sign (0.8268). This, going by the decision rule which states that if the critical value gotten from the test is more than the critical of the Pearson's Product Moment Correlation we should reject the null, otherwise accept. From the table, the critical value for r at N-2 degree of freedom is 0.632 where n = 10. The null hypothesis is therefore rejected, and states that there is a significant positive relationship between skill development and competency in product fabrication.

Discussion of the Findings

From the result obtained above, it can be inferred that there is a significant positive relationship between skill acquisition and apprentice's performance aluminium fabrication in Kogi State. This implies that increase in skill development would improve the activities of apprentices and aluminium product fabrication and vice versa. This is in line with the finding of Plani (1998). It was anticipated that training would result in improved performance, with those participants who received the greatest amount of training ultimately performing better on the training tasks.

Conclusion

Based on the findings, it can be concluded that skill development is important in providing measures that enhance apprentices' competencies in terms of quality product development fabrication and second-to-non-perfect installations. This eventually brings about technical knowledge, ability, confidence and competence in job performance both on the apprentices and the master/teacher. This, particularly, would help improve the economic doldrums of country. Relative to every other sub variable of the dependent and independent variables, Apprentices had not been outstanding in cost effective operations in terms of output.

Recommendations

The researchers therefore recommended that apprentices should be impacted with both theory and practical skills that are expedient in knowledge acquisition, SSCE should be a pre-requisite for admitting apprentices into the programme, as this aids them in measurement taking and its applications. A compulsory skill learning programme for under graduates and graduates be enforced as this help them to become self-employed, thus, would contribute immensely to Nigeria economic recovery out of recession.

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