

Analysis Of Skill Management And Workers Efficiency In Nigerian Oil And Gas Firms

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Abstract: This study analyses the relationship between skill management and workers efficiency in Nigerian oil and gas firms. Cross-sectional survey was employed. Target population for the study consists of registered oil and gas firms in Rivers State, Nigeria while accessible population consists of ten registered oil and gas firms using simple random sampling. Eighty (80) managers and supervisors were surveyed. Sample size of sixty-six (66) was ascertained using Krejcie and Morgan. Sixty six (66) copies of questionnaire were administered to the managers and supervisors but forty five (45) copies were filled correctly and returned. Kendall Coefficient of Concordance was used to analyse the hypotheses with the aid of Statistical Package for the Social Sciences (SPSS) version 22.0. The study found that skill management has positive significant relationship with workers efficiency in Nigerian oil and gas firms. It concludes that skill management measured in terms of skill attraction, skill development, skill documentation and skill retention enhances workers' efficiency in oil and gas firms in Nigeria.

Keywords: skill management, skill attraction, skill development, skill documentation, skill retention, workers efficiency

1 INTRODUCTION

The Nigeria oil and gas industry requires skills in specific areas such as offshore exploration, deepwater exploration, oil drilling, pipeline transportation, pipeline welding, oil and gas accounting, oil and gas management, oil marketing, as well as computerization of pipeline against vandals and sabotage (Adewuyi and Oyejide, 2012). This is in line with Drucker (1987) proposition on the need for new organisations to advance the knowledge of their workers to avoid extinction that will be triggered by information age. Even after the establishment of Nigerian Oil and Gas industry Content Development Act in 2010, the industry still requires more legislation in terms of Nigerianisation of oil industry skills which will be aimed at equipping the higher institutions that pour out graduates from its gates of engineering certifications to the field where they are expected to demonstrate their competencies (Abdulkabir, Sidique, Azmawani, and Hook, 2015; Abdulkabir, Sidique and Azmawani, 2016; Bakare, 2011; Olakunle, 2017). However, apart from the setting of universities of petroleum and petroleum institute across the country, the mechanization and practicalization of oil industry skills is still lacking. Albeit skills acquired from the various special universities, technical institutions and oversea trainings are usually developed and documented by oil and gas firms for tomorrow's sustainability (Ovadia, 2013; Edeh and Mlanga, 2019).

The African Association for Public Administration and Management (2011) cited in Mwanzi, Wamitu and Kiama (2017) discovered that most countries were unable to attract and retain well developed and skilled human resource as a result of many challenges such as poor compensation strategies quite apart from poor working environment. It therefore behooves on the oil and gas firms to utilize the skills at their disposal for competitive advantage. Thus, in order for Nigeria's downstream sector to survive, sustained and be productive, competent human resource must be attracted (recruited), developed (trained), documented and retained for competitive advantage (Olakunle, 2017). However, workers' remain the vehicles that drive firm's strategic intent to its expected destinations. Even as organisational objectives begat goals, oil and gas workers' are usually guided by the principle of efficiency to avoid wastage of resources at their disposal as a result of scarcity. This is very significant as the industry connects the worker, employer and the general public including host communities. Hence, conservation of resource is very crucial to its sustenance and survival. It is for these positive reasons that workers in the oil and gas industries in Nigeria need to be efficient in the discharge of their duties. When resources are allocated to each department, it is expected that such resources be utilized to achieve maximum result. It is when such results are achieved with minimum resources that organization is said to be efficient. Workers' efficiency has increased firms market share as well as create more business locations. Jones and George (2017) argued that workers' efficiency results are the key for competitiveness especially in this digital edge where goods are no longer sold on the road but online. McShane and Von Glinow (2018) added that since the business world has been transformed from open market to global markets, it is very important for firms to take advantage of skill management so as to increase efficiency. Workers that efficient are usually the ones that display discretionary behaviour attributes thereby filling the gaps for their colleagues. Efficiency focused organizations has a lot of advantages compared to those who are not. Given credence to this, Robbins and Judge (2018) affirmed that efficiency of workers in production firms usually leads to high profitability and increase in their performance. It has been shown that workers' efficiency is associated with the

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retention of potential customers (Coelli, Prasada, and Battersse, 2000). Studies have also been shown that workers' efficiency increases quality service delivery in oil and gas industry (Bratton, 2003). Thiam, Bravo-Ureta and Rivas (2001) contended that the more workers are efficient, the more productive they will be in the workplace. Dubois (2004) elucidated that workers' efficiency promotes goal congruency in the workplace. It has been shown that objectives and goals of the firm can only be achieved when workers are efficient in their respective assignments (Cascio, 2003). From the foregoing and in the quest to address the skills shortfall in the oil and gas industry in Nigeria, human resource practitioners in the industry are saddled with the responsibility of ensuring that these gaps are bridged. How can this be achieved? Human resource management professional Armstrong (2009) argued that human resource practitioners and experts need to come up with an integrated quite apart from proactive strategic approach for managing skills in the workplace. This implies that when skill is not properly managed by the human resource practitioners, the resultant effect will be low productivity. Scholars such as Esra, Isik and Mithat (2011); Razzaq and Asif (2012); Muhammad, Muhammad and Aisha (2013); Bautista, Sánchez and Sobrino (2014); Inua and Maduabum (2014); Wantania and Lapian (2015); Nyaga (2015); Nandhini, Usha and Palanivelu (2016) have investigated the criterion variable in other industries but failed to address how skill management can predict workers efficiency in Nigerian oil and gas firms. The broad objective of this study is to investigate the relationship between skill management and workers efficiency in Nigeria oil and gas firms.

2 LITERATURE REVIEW

2.1 Theoretical underpinning

The underlining theory surrounding this study is rooted in human capital theory. Armstrong (2009) contended that human capital is made up of knowledge, skills and abilities of the individuals employed in the firm. Applying the above theory in this study, oil workers possessed relevant skills that are required to pilot the affairs of the industry especially as it is the mainstay of the Nigerian economy. On another hand, Bontis, Dragoneti, Jacobson and Roos (1999) cited in Armstrong (2009) added that human capital represents the human factor in the firm; their intelligence, skills and expertise that gives the firm a distinctive advantage over their counterparts. This implies that, skill represent the ability needed in every organization to achieve desired goals. McKinsey and Company (2001) argued that for firms to survive in the turbulent business environment, they must have the right and relevant skill needed in that industry. Also, workers' in this study also represent the human capital or perhaps human resources that make up the oil and gas firms operating in Nigeria. Thus, the tenet of human capital theory is that oil and gas firms are made of individuals with different set of skills with distinctive competencies that must be harnessed, developed and retained.

2.2 Skill management

Skill management has not gained ascendance into empirical baptism compared with other concepts in

management and social sciences. This is due to similarities that exist virtually within management disciplines as propounded by Koontz (1961) in his management theory jungle pathology. In other to disentangle these anomalies in management disciplines, Koontz (1961) advocated that it is very important for scholars to clarify concepts to avoid confusion between one concept and another. However, since organisation cannot do without people so also people cannot do without the organization. Before the setting up a functional organization, certain questions come to the mind of the human resource manager or team such as; who do we need? How many individuals does the organization really need? What kind of skills should the people possess? Does the organisation have the resources to attract these skills? These and many more questions are the challenges that human resource manager faced during the attraction of applicants into the organization. In line with this position, this paper therefore present review of literatures on skill management among scholars. Skill management is perceived as the art of improving employees' ability, technique and expertise. Workers' may have abilities but they may not know how to improve it to be useful in the workplace or any other occupation. It has been shown that organizations that are more successful in attracting, developing and retaining skillful workers would have higher levels of productivity and profitability (Bautista, Sánchez, and Sobrino, 2014). In addition, Esra, Isik and Mithat (2011) asserted that skills are individuals' abilities that can make a difference on performance of organizations either through their immediate contribution or discretionary exhibitions. In furtherance, human resources professionals believed that skill management is the key element to survivability and sustainability of every organization (Inua and Maduabum, 2014). It has been established that the management of skills in the oil and gas industries in Nigeria will encourage the workers to stay rather than leaving for another organisation (Olakunle, 2017). Providing answer to the above, Muhammad, Muhammad and Aisha (2013) contended that when an organization gets to know the potentials inherent in its workforce, it becomes easier for them to invest in their skill by a way of developing them. What then is this skill management? Skill management consists of human resource management practices that support recruitment process, retention process and development of employees' skills that they employ in carryout the goals of the firm (Green, Wu, Whitten and Medlin, 2006; Cascio, 2003; Price, 2000). Skill management is the process of ensuring that employees' knowledge and abilities are updated for tomorrow's future. On another hand, Skill management is concerned with how managers identify, develop, recruit or attract, retain and deploy the skills to the workplace (Breaugh, 2000; Dubois, 2004; Armstrong, 2009). Drawing from the above, skill management is a systematic process employed by human resource professionals for discovering individuals that are skillful after which they are trained and sustained (Jones and George, 2017). This study however viewed skills management as a process of attracting people with skills, developing them, utilizing them to achieve organisational goals and retaining them in the same workplace. In this study, skill attraction, skill development, skill documentation and skill retention have been conceptualized as dimensions (indicators) of skill management. Skill attraction here refers

to identification of relevant skills needed in the oil and gas firms. Okpara and Pamela (2008) perceived skill attraction as the process of identifying people with high potentials and employ them to the organization. Rao (2000) contended that during the process of skill management, identifying skillful individuals is done inside the organization and attracting elites is done outside the organization. In a simple term, skill attraction can be done through the recruitment, selection and placement processes. When the human resource department has concluded these processes, the next stage that requires adequate attention is how to update these skills of the applicants being attracted to avoid being obsolete in the dynamic technological community. Development takes the form of learning activities that prepare people to exercise wider or increased responsibilities (Armstrong, 2009). Kumar (2012) posit that skill development can be done internally externally. Internal skill development refers to activities like training, performance management, mentoring, coaching, special projects and career development. Adeyelu, Kalema and Motlanthe (2019) added that workers also embark on workshops organized by professional bodies while some engage in educational advancement to acquire additional conceptual skills that are in line with their profession. External skill development is concerned with sending employees outside the organization to acquire new skills added to the one they have. Training on the other hand is the use of systematic and planned instruction activities to promote learning (Armstrong, 2009). Mayfield, Mayfield and Lunce (2003) argued that firms need to invest on employees, in order to meet the future expectations and needs. This could be done through continuous training of new and old talent. Dialoke (2015) elucidated that for workers to be effective they need to be trained and re-trained in order to imbibe the philosophy (incase of the new personnel) and update the knowledge and skills (incase of the old staff) needed to achieve the organizational objectives. Dialoke (2015) affirmed that training can be in the form of technical or technology training, quality training, skills training, soft skills training, professional training, team training, managerial training etc. Employees' skills can also be developed through on-the-job training, off-the-job training and job rotation (Ongori and Nzonzo, 2011). David (2006) cited in Amir and Amen (2013) argue that training not only develops the capabilities of the employee but sharpen their thinking ability and creativity in order to take better decision in time and in more productive manner. Skill documentation refers to when employees' skill are documented for future purposes in the organisation's database. Oil and gas workers possess different skills that may not be common to other industries but such skills may be domiciled with one employee. Thus, to preserve the skill of such employee; firms document the procedures or process in which that employee uses in solving problems both in offshore and onshore operations (Saeedeh and Rouhollah, 2014). This documentation can be stored in computer systems as well as office files. This is very important because of how sensitive the oil industry is to Nigeria's economy and the world at large. Skills for offshore operations are quite different from onshore operations, hence the documentation of such skills is very essential for the sustenance of the industry to avoid spontaneous employee turnover that will affect the industry in the future

(Chitsaz-Isfahani and Boustani, 2014). Skill retention in this study refers to all human resource management policies that are geared towards keeping skillful employees in the firm. Rawash and Saydam (2012) opined that skill retention is the development and implementation practices that compensate and support employees' skill to remain in their enterprise. Dessler (2013) viewed skill retention as the activities carried out by human resource department to ensure that potential employees' remain with their employer. This can be done in the form of compensating such skillful employee, increasing their pay or paying for their educational advancement (Aiza and Abdus, 2013). Some of the policies that can keep employee with skill in their workplaces include; fairness, promotion, medical benefits, housing allowance, vehicle allowance, domestic allowance, travelling allowance, etc.

2.3 Workers Efficiency

Workers efficiency is a concept that has generated a lot of confusion among scholars in social and management sciences. In defining the concept, one needs to understand the concept of efficiency. Jones and George (2017) perceived efficiency as a measure of how well or how productively resources are used to achieve a goal. Firms are efficient when managers minimize the amount of input resources (such as labour, raw materials, and component parts) or the amount of time needed to produce a given output of goods or services (Jones and George, 2017). Wankhede and Gujarathi (2014) contended that the efficiency of workers are the state or quality of being efficient, in other words a person is to say to be competent or capable to do a specific work. Taormina and Gao (2009) accentuates that since efficiency is considered to be a means to achieve organizational goals, high efficiency is desired by management for their organizations to attain high effectiveness. Bwala (2003) elucidated that efficiency is the ratio of a system's effective or useful output. Akvein, Berger and Humphrey (1997) accentuate that economic literature distinguishes four types of efficiency; transactional efficiency, productive efficiency, allocative efficiency as well as dynamic efficiency. Productive efficiency is implies the ability of firms to get the highest output from the least input given current technological constraints (Owolabi and Ajayi, 2013). On the other hand, transactional efficiency recognizes that firms expend resources to protect the economic returns to their efforts and properly right (Owolabi and Ajayi, 2013) while allocative efficiency is associated with the clearance of markets and the achievement of maximal consumer benefits given a particular production function; and dynamic efficiency refers to clearance of markets in a dynamic perspective through the improvement of existing products and processes and the development of new products (Owolabi and Ajayi, 2013).

2.4 Skill management and workers efficiency

The basic purpose behind skill management is to improve the process of recruitment, selection, retention, and employee development in order to meet current challenges faced by organization and improve performance and efficiency (Muhammad, Muhammad and Aisha, 2013). When skills are attracted, developed, documented and retained; their efficiency will be achieved. This is because; the workers will transfer the skills acquired during training to

his/her assigned task which will in turn increase productivity of the firm. On another hand, Bautista, Sánchez, and Sobrino (2014) contended that so many organisations around the globe are now realizing that attracting skilful workers, identifying them, growing and retaining them is very important to business priority. With skills management, organization would have a continuous supply of highly productive individuals in the right job and at the right time (Mayfield, Mayfield and Lunce, 2003). Green, Wu, Whitten and Medlin (2006) contended that skills management ensures that firm has competent employees with the appropriate abilities required to achieve the expected results of the enterprise. Esra, Isik and Mithat (2011) suggested that the development and implementation of skill management strategy requires high quality management and leadership from the top and from senior managers quite apart from human resource duties. Skill management and workers' efficiency cannot be separated because of their relationship in the workplace especially the as it relate to oil and gas industry. Nevertheless, when newcomers are attracted to oil and gas industry, one of the functions of the human resource manager is to make provision for them to be trained in order to meet up with the latest knowledge that are necessary to be efficient in the discharge of their respective duties (Joshi and Singh, 2009). Having done that, the next step is to keep these trained workers' with the enterprise so that they will not be tempted to 'leave' or start looking for elsewhere that their new skill being acquired will be needed with a pay that is more attractive compared to their former organization. The retention of skillful workers' is paramount to the efficiency of every organization especially the oil and gas firms, because when there are no workers that are skillful in their respective departments efficiency will be impossible. These skills can be harnessed successfully when they are compensated as well as promoted to the next career ladder in the oil and gas industry where they work. Thus, transport allowance, healthcare allowance and educational advancement allowances as well as retention strategies are significant for employees with special skills to stay in their organizations rather than discouraging them from leaving to other firms (Edeh and Mlanga, 2019). With these allowances in place, it will be very difficult for skillful employees' to quit their jobs. Supporting this argument Dialoke (2016) suggested that for retaining skillful workers in Nigeria, materials and finance must be provided to enable them carryout their organisational functions otherwise productivity will definitely suffer.

Based on the extant literature review, the following research hypotheses were formulated:

H₀₁: skill attraction has no significant relationship with workers efficiency in Nigerian oil and gas firms.

H₀₂: skill development has no significant relationship with workers' efficiency in Nigerian oil and gas firms

H₀₃: Skill documentation has no significant relationship with workers' efficiency in Nigerian oil and gas firms

H₀₄: skill retention has no significant relationship with workers' efficiency in Nigerian oil and gas firms.

3 RESEARCH METHODOLOGY

Cross-sectional survey was employed. Sekaran and Bougie (2016) affirmed that a cross-sectional survey is a study where the investigator gathers data just once, over a period of days or weeks or months, in order to answer a research question.

3.1 Population and Sampling Procedure

Target population for the study consists of registered oil and gas firms in Rivers State, Nigeria while accessible population consists of ten registered oil and gas firms using simple random sampling. Eighty (80) managers and supervisors were surveyed. Sample size of sixty-six (66) was ascertained using Krejcie and Morgan (1970).

3.2 Data collection method

Copies of questionnaire were used to collect data from the respondents'. Sixty six (66) copies of questionnaire were administered to the managers and supervisors but forty five (45) copies were filled correctly and returned. The instrument validity was ascertained through face and content validity, while the reliability was determined using Cronbach Alpha. The dimensions of skills management falls within the alpha coefficients of 0.70-0.80 as advocated by Nunnally (1978) adopted by Sekaran (2003), Sarantakos (2005); Edeh and Anyanwu (2015), and Eketu (2016).

3.3 Measurement and Data Analysis Technique

Dimensions of skill management as well as workers efficiency were measured with four items each on a 5-point Likert scale ranging from 5 (Strongly agree); 4(Agree); 3(Disagree); 2(Strongly disagree) and 1(Neither agree nor disagree). Frequency distribution was used to analyse respondents' demographic characteristics. Kendall Coefficient of Concordance was used to analyse the hypotheses with the aid of Statistical Package for the Social Sciences (SPSS) version 22.0.

4 RESULTS

Table 1: Demographics characteristics of respondents'

	Frequency	Percentage (%)
<i>Gender</i>		
Male		
Female	40	88.9
Working	5	11.1
<i>Experience</i>		
1-5 years	12	26.7
6-10 years	24	53.3
11 years & above	9	20.0
<i>Educational Qualification</i>		
Diploma	15	33.3
Master	4	8.9
Bachelor degree	24	53.3
Others	2	4.4

Table 1 above shows the demographic characteristics of respondents. 40 respondents representing 88.9% were males, while 5 respondents representing 11.1% were females. This implies that 40 out of 45 respondents in selected Nigerian oil and gas firms were males. 24 respondents representing 53.3% have worked in the

industry between 6-10 years; 9 respondents representing 20.0% have worked in the industry between 11 years and above; 12 respondents representing 26.7% have worked in the industry between 1-5 years. 2 respondents representing 4.4% hold other educational qualifications not included in the instrument; 15 respondents representing 33.3% hold diploma certificates; 4 respondents representing 8.9% hold master degrees; 24 respondents representing 53.3% holds bachelor degrees.

Table 2 -bivariate analysis between skill attraction and workers efficiency

		Skill attraction	Workers efficiency
Kendall's tau_b	Skill attraction	Correlation Coefficient	1.000
		Sig. (2-tailed)	.000
		N	45
	Workers efficiency	Correlation Coefficient	.833**
		Sig. (2-tailed)	.000
		N	45

** Correlation is significant at the 0.05 level (2-tailed).

Table 2 above shows the result of bivariate analysis between skill attraction and workers efficiency. The result revealed that skill attraction has a positive significant relationship with workers' efficiency (p<0.05; .000) with a high correlation coefficient of .833**. Thus, null hypothesis is rejected and alternate hypothesis accepted.

Table 3 - bivariate analysis between skill development and workers efficiency

		Skill devt.	Workers efficiency
Kendall's tau_b	Skill devt.	Correlation Coefficient	1.000
		Sig. (2-tailed)	.000
		N	45
	Workers efficiency	Correlation Coefficient	.872**
		Sig. (2-tailed)	.000
		N	45

** Correlation is significant at the 0.05 level (2-tailed).

Table 3 above shows the result of bivariate analysis between skill development (skill devt.) and workers efficiency. The result shows that skill development has a positive significant relationship with workers' efficiency (p<0.05; .000) with a high correlation coefficient of .872**. Thus, null hypothesis is rejected and alternate hypothesis accepted.

Table 4- bivariate analysis between skill documentation and workers efficiency

		Skill docu.	Workers efficiency
Kendall's tau_b	Skill docu.	Correlation Coefficient	1.000
		Sig. (2-tailed)	.000
		N	45
	Workers efficiency	Correlation Coefficient	.788**
		Sig. (2-tailed)	.000
		N	45

** Correlation is significant at the 0.05 level (2-tailed).

Table 4 above shows the result of bivariate analysis between skill documentation (skill docu.) and workers efficiency. The result revealed that skill documentation has a positive significant relationship with workers' efficiency (p<0.05; .000) with a high correlation coefficient of .788**. Thus, null hypothesis is rejected and alternate hypothesis accepted.

Table 5 - bivariate analysis between skill retention and workers efficiency

		Skill retention	Workers efficiency
Kendall's tau_b	Skill retention	Correlation Coefficient	1.000
		Sig. (2-tailed)	.000
		N	45
	Workers efficiency	Correlation Coefficient	.862**
		Sig. (2-tailed)	.000
		N	45

** Correlation is significant at the 0.05 level (2-tailed).

between skill retention and workers' efficiency. The result revealed that skill retention has a positive significant relationship with workers' efficiency (p<0.05; .000) with a high correlation coefficient of .862**. Thus, null hypothesis is rejected and alternate hypothesis accepted.

4.1 Discussion of findings

From the results above, the study found that skill management has positive significant relationship with workers efficiency in Nigerian oil and gas firms. This is in line with Mwanzi, Wamitu and Kiama (2017) result which revealed that skill identification is very significant for the growth and sustainable organization. This is because in order to effectively develop skills, oil and gas firms must first identify the right skill needed in the industry. Attracting skills that are relevant for competitive advantage is one of the prerequisite and predictors of workers efficiency for multinational companies across the globe (Horwitz, Heng and Quazi, 2003; Andrés, 2010; Debowski, 2006). The survival and sustenance of multinationals companies is dependent mostly on how they develop the skills of their workers especially in this era of digitalization (Terjesen and Frey, 2008; Marina, 2016). In addition, Paul and Luiz (2018) result shows that documenting skills have become one of the strategies that multinational firm employed to solve problems in their workplace without recalling the individual that owns the original idea.

4.2 Conclusion and Recommendations

Drawing from the finding above, the study concluded that skill management measured in terms of skill attraction, skill development, skill documentation and skill retention enhances workers' efficiency in oil and gas firms in Nigeria. Based on the conclusion, the study hereby recommends that;

1. To avoid skill shortage in the oil and gas industry, human resource managers should continue to attract and develop their workers' skill to meet up with the current trends in the industry.

2. Managers and practitioners in oil and gas businesses should document employee skill to avoid disruption of production.
3. Oil and gas firms should always consult qualified and certified human resource scholars to assist them in skill attraction, skill development, skill incubation and skill retention to enhance workers' efficiency.

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