International Journal of Organizational Intelligence and Systems | ***ISSN 3087-4440***
Published by BIRPUB https://birpub.org/ijois
Imp. Factor: 5.317

Intellectual Capital and Employee Performance in Selected Plastic Manufacturing Firms in Anambra State, Nigeria

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Abstract

The study will examine the relationship between intellectual capital and employee performance in selected plastic manufacturing firms in Anambra State Nigeria. Specific objectives of the study will be to examine the extent of relationship between human capital and employee performance in selected Plastic Products Manufacturing Firms in Anambra State, Nigeria; to determine the extent of relationship between structural capital and employee performance in selected Plastic Products Manufacturing Firms in Anambra State, Nigeria; and to investigate the extent of relationship between relational capital and employee performance in selected Plastic Products Manufacturing Firms in Anambra State, Nigeria. Descriptive survey research design will be adopted. Data will be collected from 181 respondents of 12 selected plastic manufacturing firms through using Krejcie and Morgan table (1970). A test of significance will be conducted to determine the acceptance or rejection of stated hypotheses first using the Pearson Product Moment Correlation Coefficient (r), to ascertain the strength of relationship between the independent variables (x = intellectual capital: human capital, structural capital and relational capital) and the dependent variable (Y = employee performance). The findings will show if there is a correlation between intellectual capital and employee performance in selected plastic manufacturing firms in Anambra State Nigeria. The study will conclude if intellectual capital shall ensure evaluation of employee performance as it will significantly improve organizational competitiveness and survival. The result will show a recommendation that organizations should increase their investment in the development of human capital to improve employee performance and enhance sustainable growth and organizational performance.

Keywords: *Intellectual Capital, Employee Performance, Human Capital, Plastic Manufacturing Firms, Anambra State*

Cite*:* Daniel O. I. (2026). Intellectual Capital and Employee Performance in Selected Plastic Manufacturing Firms in Anambra State, Nigeria. *International Journal of Organizational Intelligence and Systems, 4* (3), 156-182. https://doi.org/10.5281/zenodo.21610373

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Introduction

The Nigerian plastics and packaging sector started with about 50 plastic companies in the 1960s and had grown to over 3,000 companies in 2013 with a production capacity of over 100,000 tons per year (Sindiku and Osibanjo, 2011). There is a growing market for plastic products in Nigeria driving this development. Products from recycled plastic are now abundant in the country, including furniture, packaging materials (nylon bags), footwear, hangers, boxes, foot mats, waste bins, and water containers, among others. Plastics are materials or products made from a wide range of polymers of high molecular mass. They have broad applications in time and space due to their durability, ease of production, low cost and relatively light weight. Recent decades have witnessed a tremendous increase in plastic use in a wide range of products. Global production of this commodity increased from 1.5 million metric tons (Mt) per year in 1950 to 245 million Mt in 2008, and it has been projected that global plastic production could triple by 2050 (Green paper, 2013). Its use has increased twentyfold in the past half-century and is expected to double again in the next 20 years (Ellen, 2016). Plastic is increasingly replacing metals, glass, ceramics and wood in many products. Plastic packaging materials are now employed in the food, beverage and other fast-moving consumer goods industries (Cooper, 2013).

In knowledge based economy, intellectual capital is a vial contributor to organizations more than tangible assets in value generation and competitive improvement towards higher performance (Jelínková and Jiřincová, 2015). Considering the resource-based theory, the resources within firms are unique and inimitable. Clarke, Seng and Whiting (2011) assert that intellectual capital is a new management direction as a strategic resource and it is connected to securing a competitive advantage and superior performance by value generation. Thus, it is important for organizations to comprehend, identify, develop, and utilize intellectual capital effectively, which invariably influences organizational performance in the long run.

The manufacturing industry as a capital- and knowledge-intensive industry, is the backbone of a nation's economy (Behun, Gavurova, Tkacova and Kotaskova 2018). However, this industry has been confronting numerous challenges emanating from domestic and international markets (Herrmann, Schmidt, Kurle, Blume and Thiede, 2014). In 2014, the strategy Manufacturing Innovation 3.0 was released with the aim of improving the general performance and competitiveness of Nigeria's manufacturing industry (Xu and Sim, 2018). The manufacturing sector in South East mainly relies on the imports of high-tech production materials from Japan (Fukao, Ikeuchi, Kim, Kwon and Makino, 2016). Meanwhile, Japan and South Korea have become engaged in trade restriction battle which will seriously hinder the sustainable development of Nigeria's manufacturing sector, especially plastic manufacturing firms. For this and many other reasons, it has become necessary for Nigerian manufacturing firms to effectively and efficiently use intellectual capital as a new way of obtaining a sustainable competitive advantage and improve organizational performance (Fukao et al 2016).

Due to increasing turbulent business environment coupled with tight competition that the operators of plastic products manufacturing firms face currently, there is need for plastic firms to look for better competitive techniques for modern business as the traditional orientations has not resulted to adequate improvement towards achieving fundamental business environmental changes (Hatch and Howland, 2015). The Plastic products manufacturing firms need strategic resources in terms of intellectual capital to respond efficiently and effectively to the current market challenges (Keller, 2014), for plastic products manufacturing firms to compete favourably in the market they are expected to continuously improve their performance through quality improvement strategy and product differentiation in line with the Resource Based View (RBV) theory propounded by Penrose in 1959 which states that firm's resources such as intellectual capital are essential in increasing and sustenance of competitive edge in the global business environment (Teece, 2014). Also, Barney and Hesterly (2010) opine that intellectual capital, as the key strategic resource of organization helps to harness other resources to facilitate organization's competitive edge and survival. The issue of intellectual capital correlates with the idea of resource based view as plastic firms apply the various forms of knowledge resources in harnessing their performance.

Based on the above assertions Barney and Hesterly, (2010) also emphasize that it is pertinent to note that for resources to be strategic and thus generate competitive advantage, such resources must be valuable, rare, and imperfectly inimitable and non-substitutable. That is why intellectual capital is referred to as the possession of knowledge and experience, skills, good relationships, and technological capabilities which when applied will give organizations competitive advantage. Based on this assertion, we can emphatically say that intellectual capital is made up of resources and capabilities that rare, inimitable, valuable, and non-substitutable which lead to companies having superior performance and a lasting competitive advantage. It means that, intellectual capital is equally known as intellectual property, business intelligence or knowledge assets, which remains infinite and bestowed on employees who strive to achieve competitive advantage through higher level of job performance (Zott, Amit and Massa, 2011). Intellectual capital does not appear on the company balance sheet but it has more value for organizations than physical assets that is why it is driven more by knowledge and information than the production process of the firm. Bayburina and Golovko (2009) explain that intellectual capital includes human capital, process capital, innovation capital and network capital. Plastic products manufacturing industry which is in its transformation process to key-economy, requires investments in the knowledge infrastructure. For plastic products manufacturing firms to develop and maintain higher status in a knowledge based economy, high quality intellectual capital is a priority. Intellectual capital can be measured in terms of human capital, structural capital, customer capital, social capital, technological capital and spiritual capital (Zott, Amit and Massa, 2011). These key variables determine the extent to which intellectual capital relates with employee performance in the dynamic business environment. In this present study, emphasis will be on only four variables which include; human capital, structural capital, relational capital and technological capital in relation to employees' performance in selected plastic products manufacturing firms in Anambra state, Nigeria.

On the other hand, employee performance awareness which originated from the Hawthorne studies has been given an improvement both in learning and development in order to achieve the overall business strategy and to create a high performance workforce. Therefore, employee performance has become vital element and value for attaining the goals and aspirations of the organization. Employee performance is defined as a process for establishing a shared workforce, understanding what is to be achieved at organizational level (Kemboi, Geoffrey, and Keter, 2014).

It focuses on aligning the organizational objectives with the employees' agreed measures, development plans, competency, skills requirements, and delivery of results. Employee performance is a complex, multidimensional construct that can be defined and evaluated in different dimensions. Employee performance can be perceived in terms of quantifiable outcomes of task behaviours and in terms of behavioral dimensions (e.g., work related communication and decision making) that are less quantifiable. Kemboi et al (2014) addressed three types of employee behaviors which include; to remain within the organizational system, to carry out the role assignments, and to engage in innovative and spontaneous activities in achieving organizational objectives which go beyond the role specification. Nevertheless, employee performance as it relates to job-related pattern towards intellectual capital available in the plastic products manufacturing firms can be measured in terms of efficiency, work quality, adherence to organizational values and teamwork. However, this present study takes employee performance as single construct rather than considering the decomposed variables of measurements. The plastic products manufacturing firms are medium scale enterprises that manufacture all kinds of plastic products of different types and shapes for domestic and industrial uses.

Statement of the Problem

The need for economic growth and development of business organizations at micro and macro spheres has influenced the increasing importance of intellectual capital which facilitated the shift of investment decisions to attain the current high demand for plastic products. Measuring and managing intellectual capital has become a global challenge which is not only restricted to plastic products manufacturing firms alone but to other industries in the economy. Every business entity irrespective of size is required to select the correct and appropriate intellectual capital and indicators to measure it as it relates to employee performance in the firm (Bayraktaroglu, Calisir and

Baskak. 2019). It has been observed that business organizations irrespective of their sizes have failed to select the correct and appropriate intellectual capital and various indicators to measure employee performance. This appears to drastically reduce the awareness of the need to measure intellectual capital in relation to performance. In the same vein firms have adopted different decisions like dividend decisions, financing decisions and investment decisions without placing premium on the human capital aspect of the organization which affect the level of work efficiency among employees to achieve the desired results. However, many decisions have not been taken on who to train, retrain, promote or demote which may lead to poor structural capital which invariably affect work quality in the plastic products manufacturing firms. More so management decisions are not tailored towards the right employees to train, retrain, promote or demote which may have led to poor structural capital which invariably may affect work quality in the plastic products manufacturing firms. The inability of plastic products manufacturing firms to accommodate their customers demand as result of poor organizational structure often affect the level of employee work quality which may influence customers' preference to other firms' products. Furthermore, there has been conflicting issue on the relevance and relationship between relational capital and employee job performance as it affects the organization's stakeholders- customers and suppliers, the government or even related industry associations in the external environment which may negatively affect employee performance especially in plastic products manufacturing firms. Poor relational capital often leads to employees' negative adherence to values which in the long run can affect the extent which the firms can acquire competitive advantage over other firms in the same industry. Given the above evidence-based research, the question remains whether intellectual capital (in terms of human capital, structural capital and relational capital) will affect employee performance in selected plastic products manufacturing firms in Anambra State, Nigeria has become obvious for enquiry.

Objectives of the Study

The general objective of the study of the study is to examine the relationship between intellectual capital and employee performance in selected plastic products manufacturing firms in Anambra State, Nigeria. However, the specific objectives of the study are:

1. To examine the extent of relationship between human capital and employee performance in selected Plastic Products Manufacturing Firms in Anambra State, Nigeria.
2. To determine the extent of relationship between structural capital and employee performance in selected Plastic Products Manufacturing Firms in Anambra State, Nigeria.
3. To investigate the extent of relationship between relational capital and employee performance in selected Plastic Products Manufacturing Firms in Anambra State, Nigeria.

Review of Related Literature

Concept of Intellectual Capital

Intellectual capital comprises the stocks or field of knowledge, intangible assets, and lastly intangible resources and capabilities, which enable the development of fundamental business processes of organizations, facilitating the achievement of competitive advantages. Intellectual capital is a value that provide new resources to the organization through human –oriented approaches and these help the organization to achieve competitive superiority. Though propounded by Calbraith, an American economist, in 1969 as a dynamic process of knowledge generation, and a means of attaining organizational success through acquiring competitive advantage. Intellectual capital can be defined as the sum of knowledge assets that a company owns or controls, which can bring competitive advantage to an organization and create high value (Xu, 2013; Yang, 2014). Intellectual capital leads to sustainable value which reflects the organization's ability to satisfy the existing market and society needs without affecting future value creation since the investment in intellectual capital creates competitive advantage to the organization.

Intellectual capital can be defined as all those intangibles assets an organization has and which can be acquired or generated, assimilated, processed and implemented in a harmonious way in order to attain higher levels of

innovation, productivity and competitiveness, in spite of not being reflected in the financial statements. Moreover, they produce future value which supports competitive advantage (Zhang et al., 2018). Therefore, the purpose of IC research is to analyze all the intangibles that exist in an organization. Likewise, IC is considered to be dominated by the organization's ability to transform one resource into another. Hence, not only is it about owning intellectual capital, but also about how this allows the organization to generate even more. Asiaei and Jusoh (2017) comment that "the literature shows that intellectual capital comprises various types of knowledge-based assets", so it is very important that the organization can clearly identify them in order to process them. A more strategic use of Intellectual capital requires reinforcement of training, professionalization and cooperation within the organization (Fernández-Jardón and Martos, 2016). In like manner, Yaseen et al. (2016) argue that organizations can substitute tangible assets and resources, but they are unlikely to do that with intangible assets.

On the other hand, Pedro et al. (2018) state that "the importance and positive impact of Intellectual capital on the performance of organizations is confirmed, as well as the advantages of efficient assessment for their development and growth". In this sense Pitchayadol et al., (2018) and Dabić et al., (2018) also argue that Intellectual capital is more important as a source of competitive advantage in Small and Medium Enterprises (SMEs) because tangible resources are often fewer. This explains why the impact is heavier on SMEs that take advantage of their Intellectual capital. There are several methods to measure Intellectual capital in organizations which include human, structural, relational and technological capitals as it relates to organizational performance. In a research conducted by Phusava, Comepa, Sitko-Lutek and Ooi, (2011) on the impact of intellectual capital on organizational performance in terms of profitability, revenue growth and employee productivity in the manufacturing companies in Thailand, found that positive significant relationship exist between all the indicators of intellectual capital and performance indicators in terms of profitability, revenue growth and employee productivity. Also, intellectual capital contributes greatly in overall performance of manufacturing companies.

Human Capital

Human capital is an amalgamation of genetic inheritance, attitude, education and people's experience in their life and business. The human capital is the most vital and valuable asset of any organization when compared to other capitals or equipment but often ignored asset by the firms as it does not reflect in the organization's financial document. Khan, Farooq and Hussain, (2010) assert that human capital can be a valuable asset or liability to an organization depending on how it is maintained and harnessed for optimum performance and this can be achieve through affective commitment of the employees. Baron, (2011) concluded that human capital is the expertize or employees' skills, knowledge and experience shared with their organization in order to add value to both the organization and its products.

Depablos (2003) asserted that the essence of human capital strongly entails on the capability of employees to increase the efficacy and efficiency of the firm and in return have a competitive advantage. Thus, Kianto, Hurmelinna-Laukkanen, and Ritala, (2010) maintained that human capital is perceived as the vital ingredient of intellectual capital variable since the continuous survival of the organization is anchored on it. Based on this arguments, Wang, Wang and Liang (2014) described human capital as "the sum of employees' competence, knowledge, skills, innovativeness, attitude, commitment, wisdom and experience. Human capital consists of the values, attitudes, and habits of the people in the organization in addition to the leadership that motivates people to display their potential in the organization (Kianto, et al, 2010).

Structural Capital (SC)

Structural capital is an organization's ability to meet the company routines and structures that support employee efforts to produce optimal intellectual performance as well as overall business performance. For example, the company's operational systems, manufacturing processes, organizational culture, management philosophy and all forms of intellectual property are owned by the company. An individual can have a high intellectual capacity but if the organization has poor systems and procedures that intellectual capital cannot achieve optimal performance and

potential may not be fully utilized (Ngah, and Ibrahim, 2011). Structural capital is the infrastructure that supports employees to create optimum performance, including the ability of the organization to reach the market, hardware, software, databases, organizational structure, patent, trademark, and all the ability of organizations to support employee productivity (Bontis, 2000). The concept of the existence of structural capital allows the creation of intellectual capital and be a liaison / processing of human resources into intellectual capital.

Structural capital comprises of the concepts, models, patents, computers and system created by employees, yet owned by the firm. Ideally, it is acquired elsewhere since organization exists from the combination of internal structure and people. Structural capital will improve when the firm develops process and establishes other internal initiatives and enhances its technology which will invariably influence employee competence. Amrizah and Nawal, (2013) define structural capital as the ability of organization to accommodate their customers demand. Recent evidence suggests that a good organization structure, together with skilled employees providing efficient and quality service will cause greater performance of the firm.

Consequently, Kong, (2010) observed that structural capital has to do the mechanisms and structures of the organization which invariably improves organizational innovation since it is vital resource of the organization. Besides, structural capital helps in the retention of organization's human capital (Santos-Rodrigues, Faria, Cranfield, and Morais, (2013). This is because structural capital plays the role of supportive infrastructure for human capital since it creates conducive work climate for organizations to invest its human capital and knowledge (Ngah, and Ibrahim, 2011).

Relational Capital (RC)

The relational capital relates to internal intellectual resources and external stakeholders, which influences any business entity the capability to create value (Wang, Wang and Liang, 2014). Relational capital, equally referred to as customer capital or external capital entails the relationships with customers and suppliers, the government or related industry associations, brand names, trademarks and reputation. It refers to the organization's relationships or network of associates and their satisfaction with and loyalty to the company. Relational capital (RC) is the knowledge that is embedded in the relationships with any stakeholder that affects the firm's life (Mondal, and Ghosh, 2012). Besides, Pearse, (2009) and De Pablos, (2003) maintained that relational capital is utmost vital to influence the actualization of wealth-creation potential of both human and structural capital of the firm. Hence creating and maintaining relational capital is crucial for having successful organizations (Joshi, Cahill, Sidhu and Kansal, 2013).

Relational capital or customer capital is the firm's relationship the customers who do business with the organization. Edvinsson and Malone (2017) described relational capital as depth (penetration), width (coverage), and relatedness (loyalty) of the organization. Edvinsson and Malone (2017) maintained that relational capital is the ability of customers to continue close relationship with the firm in business. Relational capital is always referred to as a source of funding compared to human capital and structural capital. For instance, the brand, is an example of relational capital that have an easy technique of assessment. This method is done by calculating the customer's premiums would be paid for a particular brand of product compared with other brand products, then by using the cost of capital and the level of reward for the capital to measure the value of the asset (brand reputation) who created the premium.

Employee Performance

Employee performance is a factor that shapes and determines the success of the firm through the ability of the firm to compete favourably in the market. It is a dependent parameter that ascertain the effectiveness of the firm as its competitive advantage revolves on the ability of employees to display their skills. Agbejule (2011) assert that organizations strive to achieve its goals through Improving employees performance by redesigning and adjusting its organizational culture, organization's environment and strategy (Tuanmat and Smith, 2011), commitment to

organizational goals (Bhatti, Waris, Zaheer and Rehman, 2011). Performance refers to the ability of an organization to create results and actions at an acceptable leve(Gharakhani, and Mousakhani, 2012). Apparently, Ramayah, Samat and Lo, (2011) emphasized that employee performance is the extent which the employees meets the needs and aspirations of both the organization and its stakeholder in order to survive. Furthermore, Ho, (2011) added that employee performance is the measure of how effective an organization accomplishes its objectives. Measuring employee performance can be done considering the emotional and psychological behavior of the employees in the organization. Considering the nature of and task involve in plastic manufacturing firms, the employee performance indicators can be measured in terms of efficiency, work quality, adherence to organizational values and teamwork in the firm.

Empirical Review

Riza and Harjum (2021) conducted a study on the effect of intellectual capital on profitability with firm size as moderating variable in the state-owned enterprise in Indonesia from 2012-2020. The study focused to ascertain the effect of intellectual capital on state-owned enterprises (SOE) in Indonesia from 2012-2020.One of the measurements of intellectual capital uses the Value Added Intellectual Coefficient (VAIC) indicator variable. This research used87 observations as the research sample. The analysis tools used were multiple regression and moderated regression analysis (MRA) to determine the moderating effect of company size in moderating intellectual capital on profitability. The results indicated that intellectual capital as measured by the Value Added Intellectual Coefficient (VAIC) variable had a significant positive effect on profitability. In addition, it is shown that company size isalso able to moderate the effect of intellectual capital (VAIC) on profitability. The study concluded that Intellectual capital is an intangible asset that is difficult to measure, but has a large effect on the company's earnings performance. The study recommended that that investment in intellectual capital is a positive venture as the increase in VAIC as a proxy for intellectual capital is able to increase the company's profitability and hence firms need to pay attention to increasing the intellectual capital that they have.

Buallay, Abuhommous and Kukreja (2020) conducted a study on the relationship between intellectual council, Saudi Arabia. The objective of the study was to examine the relationship between value added intellectual capital in terms of human capital efficiency (HCE), structural capital efficiency and capital employed efficiency (CEE) and employee productivity in Gulf Cooperation Council, Saudi Arabia. The study employed descriptive survey design. Data were collected from a sample of 198 firms listed in Saudi Arabia and Bahrain from 2012 to 2014. The data generated were analyzed using Ordinary Least Square Regression. The results indicated that Value Added Intellectual Capital and its various variables are significantly and positive associated to variations in the productivity of employees. The study concluded that the investment in human capital vital towards improving the performance of business organization. Thus, the study recommended that management of organizations should be encouraged to focus and invest their resources on human capital in order to attain the objectives and goals of their organizations.

A study on the relationship between intellectual capital, organizational performance and competitive advantage of medium-scale manufacturing organizations in Mexico was conducted by Ibarra, Hernandez-Perlines and Garcia (2019). The study aimed to examine the extent which human capital, structural capital and relational capital relate on the performance of medium enterprises in Mexico. Also, it investigates the extent which competitive advantage mediates the relationship between intellectual capital and organizational performance. The study adopted descriptive survey design. A sample of 309 CEOs of medium scale manufacturing firms was administered questionnaire. The data collected were analyzed using Partial Least Squares Structural Equation Modeling (PLS SEM) with the aid of SPSS version 20. Finding revealed that

all the indicators of intellectual capital have a significant positive relationship on the performance of medium scale manufacturing firms in Mexico. In the same-vein, competitive advantage mediates the relationship between intellectual capital and performance medium scale manufacturing firms. The study concluded that the value of intangible assets rises as that of tangible assets decreases; this allows organizations, which prioritize intellectual capital, to produce competitive advantages and achieve better performance. The study recommended that

manufacturing firms should channeled their resources towards instituting effective intellectual capital to enhance organizational performance.

Murimil, Ombaka and Muchiri (2019) conducted a study on the relationship between intellectual capital and performance of small and medium manufacturing enterprises in Kenya. The study aimed to investigate the relationship between intellectual capital and performance of small and medium manufacturing enterprises in Kenya. The study employed a descriptive survey as well as explanatory research design. 183 small and medium manufacturing firms were selected of which one manager was selected from each firm as a research sample. Primary source of data was employed mainly through a structured questionnaire. The data collected were analyzed using correlation and multiple regression analyses. The study revealed that intellectual capital had no significant relationship with performance of small and medium firms. The study concluded that it is more justifiable economically to investment in intellectual capital as it would help to influence profitability through increasing number of customers, sales volume and market share of the firms. The study recommended that the managers should conduct cost benefit analysis before committing their resources in order to safeguard their intellectual capital such as patents.

Dzenopoljac, Yaacoub, Elkanj and Bontis (2017) conducted a study on the impact of intellectual capital on innovation in telecommunication organizations in Jordan through the presence of knowledge management as a mediator. The study employed a descriptive survey design. Data were sourced primarily through a structured questionnaire. Thus the data generated were analyzed using regression analysis. The findings indicated that intellectual capital has a positive significant impact on knowledge management and the latter on employee innovation.

A study on the effect of intellectual capital on organizational performance in Malaysia was conducted by Hashim, Osman and Alhabshi (2015). The objective of the study was to examine the effect of the dimensions of intellectual capital in terms as human capital, structural capital, customer capital, social capital, technological capital and spiritual capital on organizational performance in Malaysia. The study employed a descriptive survey design. A sample of 187 respondents' mainly higher level managers was selected from a total population of 311 managers. Data were collected using a structured questionnaire distributed to higher -level management in different firms in Malaysia. The data collected were analyzed using the Multiple Regression Analysis Model. The results indicated that intellectual capital has a positive significant effect on organizational performance in Malaysian manufacturing firms. The study concluded that organizations, which are balance in relational, human and structural capitals, perform effectively with regards to financial and market performance. The study recommended that organizations are expected to possess a balanced IC model, which comprises of world class infrastructure, highly educated, and skilled employees that can meet global standards.

A study on the relevance of intellectual capital and employee job performance as measured with distinct constructs of in-role and extra-role behaviors in Turkish banks was conducted by Tastan and Davoudi (2015). The objective of the study was to investigate the impact of intellectual capital on employee performance behaviours in terms of in-role and extra-role behaviours. The study employed a descriptive survey design. Data were gathered from 129 employees in the banking sector through structured questionnaire. The data collected was subjected to Structural Equation Modelling (SEM) test. The findings indicated that perceived intellectual capital such as human, social and organizational capitals have a positive significant impact on the employees' in-role and extra-role performance behavior. The study concluded that perceived intellectual capital would be associated with the employee behavioral outcomes of two distinct constructs of performance behaviors—in-role and extra-role behavior. The study recommended that organizations should emphasize on the essence of social, organizational, and human capital in order to enhance their development and sustainability.

Kin Gan and ZakiahSaleh (2008) tested the performance of corporate intellectual capital and technology intensive company listed on Bursa Malaysia (MESDAQ) using Pulic models. The study explored the relationship between human and efficiency of physical capital and productivity. The study adopted survey research design. Data were collected through questionnaire which was analyzed using regression model. The results showed that the

technology intensive companies still depend on the efficiency of physical capital. Physical capital efficiency is a significant variable related to profitability, while human capital has a positive effect on the productivity of the company. Intellectual capital in the company is not able to explain his relationship with the market valuation (market valuation).

Wang, Liang, Wang and Xiang (2018) in their study on the influence of intellectual capital (IC) on firm performance. The aim of the study investigated the influence of various intellectual capital variables on innovative speed and quality of products of organization. The study employed descriptive survey design technique. Primary source of data was used mainly structured questionnaire instrument for collection of data. The data collected were subjected to analysis of variance test. The results indicated that three dimensions of intellectual capital namely human capital, structural capital, and relational capital, are positively related to innovation speed and quality, which invariably facilitate the financial and operational performance of a firm. The study concluded that intellectual capital speed up the level of innovative capability of organizations which invariably influences quality of products of the organizations.

A study on the impact of intellectual capital on business performance by Chu, Chan, Yu, Ng and Wong (2011). The objective of the study focused on examining the impact of various indices of intellectual capital on business performance. The study employed descriptive survey design method. Primary source of data was employed mainly through structured questionnaire. The data gathered were subjected to analysis of variance test. The results indicated that intellectual capital indicators have positive impact on business performance. Also, the study found that intellectual capital has a positive impact with customers and partners, innovation efforts, the infrastructure of the firm and the knowledge and skill of the members of the firm. The study concluded that business performance indices depend on the extent of utilization of available intellectual capital in the firm which influences the firm the grow and acquire more competitive advantage in the industry.

In the same vein, Taylor and Ahmed (2011) studied the value relevance of intellectual capital disclosures in organizations in Vafaei. The aim of the study focused on assessing the impact of various dimensions of intellectual capital on organizational performance. The study employed descriptive survey design method. Primary source of data was employed mainly through structured questionnaire. The data gathered were subjected to analysis of variance test. The results indicated that intellectual capital dimensions have significant impact on organizational performance. This finding relates to the results of Zerenler, Hasiloglu and Mete (2008), which revealed that human capital, structural capital and customer capital had significant positive relationships with innovation performance. The study concluded that intellectual capital is that knowledge that can be converted into future profits and comprises resources such as ideas, inventions, technologies, designs, processes and informatics programs. In a study to investigate the influence of intellectual capital and its components, employee capital, structural capital and customer capital, upon their innovation performance.

Theoretical Framework

The following theories are connected to the study.

Human Capital Theory

The origin of Human capital theory can be trace in line with the theory of macroeconomic development. Becker (1993) purported that in 1950s, the major factors of production consist land, labour, physical capital and entrepreneur. Economists had serious problem in determining the US economic growth rate on the basis of the factors of production (Schultz 1961). This challenged was solved by the study of Becker (1964) and Grant (1996) the increase in physical capital is vital to economic success. Lucas (1990) insisted that the key assumption with human capital theory is that employees learning capacities are of comparable value with other resources involved in the production of goods and services. The basic assumptions of human capital theory include; knowledge and education acquired increases the productivity and efficiency of workers; an educated population is a productive one; the

cognitive stock is a product of innate abilities and investment in human beings and learning effort influences recruitment of highly qualified employees. In the context of plastic manufacturing firms, the theory of human capital recommends that employees who invest in training and education will improve their skill level and be more productive than those less skilled, and so can justify higher earnings as a result of their investment in human capital. Becker (1993) attests that schooling increases earnings and productivity solely by providing knowledge, skills and a way of solving issues. Meanwhile. Grant (1996), Hatch and Dyer (2004) confirmed Becker's assumption demonstrates a vital role in recent staff development and learning ,since human capital theory raises the premise that workers 'knowledge and skills can be developed through investment in education or training, that is, learning. Becker (1964) argues that on the whole, investments in education and training will improve productivity; however, it is the type of training that determines who will pay for the training, that is, the employee or the firm.

Hatch and Dyer (2004) in their study concluded that organizations can refuse to invest on the training and development of their employees 'skills believing on the idea that trained employees can decide to leave for better organizations since they have acquired the required skills and knowledge. Besides, Becker (1964) challenged this assumption and argued that organizations would be more willing to share the costs of firm- specific training as it is valuable to the incumbent firm only. This is due to the belief that employees and organizations would not gain from the same level of productivity if they changed jobs. Becker argued that firms will be reluctant to invest on overall skills in the sense that, in a competitive labour market, where workers receive their marginal product, firms could never recover what they invested in employees' skills, therefore, they refused to invest on general training. However, since the skills are perceiving as 'generic' a worker can simply change to another organization since their skills are not firm-specific. Therefore, the organization would lose its initial investment.

Consequently, Becker (1993) and Acemoglu and Pischke (1999) support that workers have the expected rewards to improve their general skills because, in competitive markets. They are the sole beneficiaries of the improvements in their performance. Meanwhile, Becker (1964) employees can decide to invest on skill training and development simply agreeing on least pay less than their job performance within the time of training. The reason in this premise associate with the assumption that workers can perceive reward on skill training as acceptable expenditure, which they hope can influence future rewards, despite the organization they engage with.

Resource Based View Theory

This study anchored on the Resource Based View Theory propounded by Penrose (1959) which states that a firm's superior performance is attained through resources, which are owned and controlled by the firm. The theory of intellectual capital has its foundations from management and macroeconomic theories. Kolaković, (2003) asserts that the argument" from 1911, in which he pointed out that knowledge, experience and skills of employees are vital to the organization. The concept of intellectual capital can be traced in the studies by Chamberlin (1933) and Robinson (1933), who purported that organization's capabilities, technical know-how, trademarks, brands, patents, etc. are major to organization's survival. Rađenović and Krstić, (2017) quoting Schumpeter (1934) has a credit in the economic theory by emphasizing the recombination of knowledge as essential prerequisite for the introduction of new innovative products. The assumptions of resource based view theory include; there is presence of internal resources the firm can exploit; organization possesses a unique bundle of resources, capabilities and competencies; the combination of these resources create sustainable competitive advantage; and information and knowledge controlled by a firm enables the firm to conceive and implement strategies that improve efficiency and effectiveness. Kraaijenbrink, Spender and Groen, (2010) emphasized that the ideology of the RBV is on qualities of firm's resources and capability. Molloy, Chadwick, Ployhart and Golden (2011) maintained that, for a firm to have competitive advantage and superior performance, its resources have to qualify as exceedingly valuable, rare, inimitable, and non-substitutable. It is noted that resources that are valuable add to improvement of the firm's performance.

Barney and Hesterly, (2010) assert that rareness influences ideal competition in the sense that resources in that aspects are possessed by fewer firms. Inimitable resources are costly to duplicate and non-substitutable, meaning that there is no alternative to accomplishing an equal function instantly available to competitors. Based on this

perception, the theory discovered that intellectual capital which is inherent in individuals has all the attributes of strategic resources since it is valuable, rare, inimitable cannot be substituted. For this reason, the study found the theory relevant in exploring the relationship between intellectual capital and employees' performance of Plastic manufacturing firms in Anambra State so as to maintain a competitive advantage for higher performance in the industry.

By 1980s, the theory of management and macroeconomics was taken over by new theory - the resource-based theory of the firm. On the basis on certain parameters forwarded by Penrose in her research in 1950s (Penrose, 1959), the founders of the theory agreed that the competitive advantage may not be only achieved through various combinations of products and markets in a given organization, but through the variations that occur in the combination of the various resources in the organization, where the resources are adjudged as strength or weakness of a particular organization. Further expansion of this concept, Barney (1991) introduced four strategies for ascertaining what type of resources enhances sustainable competitive advantage: 1) value for the consumer; 2) rareness in comparison to the competition; 3. inability to imitate; and 4.) sustainability. The solely resource that assumed to attain such set of criteria is "knowledge": invisible assets (Itami, 1987), the absorptive capacity (Cohen and Levinthal, 1990), core competencies (Prahalad& Hamel, 1990), strategic assets (Amit and Schoemaker, 1993), organizational skills (Zander and Kogut, 1995), intangible resources (Hall, 1992), and organizational memory (Walsh and Ungson, 1991). The invisible assets as viewed as utmost essential resources in the production process, which are focused on a free exchange of information, both within the firm, as well as with the workplace. The next acceptable process of the scholars who tried to capture the nature of knowledge was the stratification of knowledge. Lam, (2000) asserts that there is different dimension of knowledge which include: embedded knowledge, encoded knowledge, procedural knowledge, the most applied difference is on explicit and implicit knowledge.

Knowledge Based View Theory

Another theory which this study anchored is the Knowledge Based View Theory by Grant (1996). Knowledge has been perceived as the most strategic resource of organization (Grant, 1996b). The Knowledge Based View emphasized that relational capital is central source of competitive advantage, because such knowledge resources are hard to imitate, socially complex, immobile and heterogeneous. The theory of Knowledge Based View further validates that knowledge-related resources add more value for achieving organizational performance than tangible assets (Grant, 1996b). The basic assumptions of knowledge based view theory include; there is opportunity for knowledge creation and integration, there is measurement of intangible knowledge assets; knowledge is the most strategically importance on the firm's resources and transforming knowledge can be a complex process. Besides, knowledge within employee and it's obligatory for managers to integrate such employee owned knowledge by providing structural arrangements of co-ordination and cooperation among specialized knowledge employees. Furthermore, organizations concentrate on organizational knowledge process flowing through these structural arrangements is implemented by employees for knowledge creation, storage and deployment. Thus, such knowledge management processes lead to organizational performance (Valmohammadi and Ahmadi, 2015). Human capital is regarded as the skills, satisfaction and motivation of employees. Structural capital refers to organizational structure, procedures and processes and administrative programs (Bontis, Keow, and Richardson, 2000). Finally, relational capital denotes the relations with customers and suppliers and their loyalty toward an organization (Kim & Kumar, 2009). On the other hand, Filius, De Jong and Roelofs (2000) explained knowledge process capability in five sub segments: Knowledge acquisition, documentation, transfer, creation and application. Knowledge is a pivotal part for todays' knowledge based organizations.

Methodology

Research Design

This study adopted a descriptive survey design. This is because the researcher seeks to examine what really happened in order to uncover new significance and develop ideas from the data.

Area of Study

The area of study is Anambra State and focused mainly on twelve (12) selected plastic products manufacturing firms located at Onitsha, Nnewi and Awka towns. The selection is based on the ones that have consistently been in operation for more than ten years and their products are common in the markets.

3.3 Population of the Study

The population of the study consists of all staff of the twelve selected Plastic products manufacturing firms in Anambra and they are finite. The population of staff is three Hundred and forty (340) employees as at January 2025.

Table 1: Population of staff of Plastic Firms in Anambra State, Nigeria.

S/N	**Aluminium Firms**	**Location**	**State**	**Population**
1	DancoMannyon Industries Ltd	Onitsha	Anambra	32
2	Gods Own Plastic Company	Onitsha	Anambra	32
3	Climak Plastic Industries	Onitsha	Anambra	28
4	Zandilas Industries Limited	Nnewi	Anambra	26
5	Innoson Group of Companies	Nnewi	Anambra	30
6	Jack Mentor Industries Limited	Nnewi	Anambra	25
7	Jemmy Poly Industries Nigeria	Onitsha	Anambra	32
8	Adolpes Small Scale Industry	Onitsha	Anambra	26
9	Christoplast Industry Limited	Onitsha	Anambra	27
10	Abioko Group of Companies	Onitsha	Anambra	28
11	Nasak Limited	Onitsha	Anambra	28
12	Millenium Company Limited	Awka	Anambra	26
	Total			**340**

Source: Field survey, (2025).

Sample Size and Sampling Technique

The sample size of the study was statistically determined using Krejcie and Morgan table (1970). Therefore, the sample size is one hundred and eighty-one (181). The sample size of one hundred and eighty-one (181)

respondents was determined as shown below. (See Appendix D for confirmation of Krejcie and Morgan's table, 1970).

$S = X^2NP\ (1\text{-}P) \div d^2\ (N - 1) + X^2\ P\ (1\text{-}P)$

S= required sample size

X^2 = the table value of chi-square for 1 degree of freedom at the desired confidence (3.841).

N = the population size (340).

P = the population proportion (assumed to be 0.50 since this would provide the maximum sample size).

d = the degree of accuracy expressed as a proportion (0.05)

$$\mathbf{S=}\frac{X2\ N\ P\ (1-P)}{d2\ (N-!)+X2\ P\ (1-P)}$$

$$\mathbf{S=}\frac{3.84\ (340)(0.5)(1-0.5)}{(0.05)2(340-1)+\ (3.84)(0.5)(1-0.5)}$$

$$\mathbf{S=}\frac{326.4}{0.8475+0.96}$$

$$\mathbf{S=}\frac{326.4}{1.8075}$$

S= 180.580913 = 181 respondents

The proportionate sampling model was used to select respondents from each selected firm using the formula shown below

$$P = \frac{K\ X\ n}{N}$$

where

P = Proportionate sample of staff of each firm to be determined

K = Total Population of staff of each firm (32, 32, 28, 26, 30 etc)

n = Total sample size already determined (181)

N = Aggregate population of all staff in the selected firms (340).

Table 2: Sample size of staff of selected Plastic Firms in Anambra State, Nigeria.

S/N	**Aluminium Firms**	**Location**	**State**	**Population**

1	DancoMannyon Industries Ltd	Onitsha	Anambra	17
2	Gods Own Plastic Company	Onitsha	Anambra	17
3	Climak Plastic Industries	Onitsha	Anambra	15
4	Zandilas Industries Limited	Nnewi	Anambra	14
5	Innoson Group of Companies	Nnewi	Anambra	16
6	Jack Mentor Industries Limited	Nnewi	Anambra	13
7	Jemmy Poly Industries Nigeria	Onitsha	Anambra	17
8	Adolpes Small Scale Industry	Onitsha	Anambra	14
9	Christoplast Industry Limited	Onitsha	Anambra	14
10	Abioko Group of Companies	Onitsha	Anambra	15
11	Nasak Limited	Onitsha	Anambra	15
12	Millenium Company Limited	Awka	Anambra	14
	Total			**181**

Source; Field computation, (2025).

Sources of Data

The source of data collection was the primary data which was gathered through a structured questionnaire. The questionnaire was designed in line with the objectives and research questions. Also the Likert five point scales ranging from Strongly agree = 5, Agree = 4, Undecided = 3, Disagree = 2, Strongly disagree = 1 and, was adopted in designing the questionnaire.

Method of Data Analysis

The data gathered from the respondents were classified and translated into frequency tables. Each frequency table was analyzed using percentage distribution. A test of significance was conducted to determine the acceptance or rejection of stated hypotheses first using the Pearson Product Moment Correlation Coefficient (r), to ascertain the strength of relationship between the independent variables (x = intellectual capital: human capital, structural capital, relational capital and technological capital) and the dependent variable (Y = employee performance). Its value is between – 1 < r < + 1 and is given as

$$r = \frac{n\sum xy - \sum x \sum y}{\sqrt{n\sum x^2 - \left(\sum x\right)^2 \, n\sum y^2 - \left(\sum y\right)^2}}$$

where

r = Correlation coefficient

x and y = Variables of interest

n = number of terms

Decision Rule:

Reject the H_0 if the computed value of Z is greater than the critical value of Z (i.e; Zc>Zt). Do not reject H_0 if otherwise.

Presentation and Analysis of Data

Questionnaire Response Rate on Human capital

Table 6. **Human capital**

S/N	Question Items	Mean	Std. Deviation	Remarks
7	I fulfill the responsibilities specified in my job description.	3.36	1.127	Accepted
8	I often perform task that is expected of me.	3.65	0.967	Accepted
9	I meet formal performance requirements of my job.	3.78	0.968	Accepted
10	I engage in activities that will directly affect my performance evaluation.	3.78	0.968	Accepted
11	I often neglect certain aspect of job I am obligated to perform.	3.78	0.968	Accepted

Sources: Field Survey, (2025).

The means and standard deviations of questions under Human capital construct are as shown in Table 6 above. The results for one sample t-test of for means for questions under this construct are in appendix F. At 0.05 levels, the questions under the Human capital constructs are accepted.

Questionnaire Response Rate on Structural Capital

Table 7: Structural Capital

S/N	Question Items	Mean	Std. Deviation	Remarks
12	In my firm, tasks are well organized to reflect the image of the firm.	3.30	1.144	Accepted

13	Employees are tasked to maintain team spirit to ensure quality work delivery.	3.30	1.144	Accepted
14	We are oriented and trained based on the required of the organization	3.30	1.144	Accepted
15	We interact and exchange ideas with individuals from different areas of our organization.	3.78	1.139	Accepted
16	We are allowed to initiate on how task will be achieve without stress.	3.78	1.139	Accepted

Sources: Field Survey, (2025).

The means and standard deviations of questions under Structural Capital construct is as shown in Table 7 above. The results for one sample t-test of for means for questions under this construct are as shown in appendix F. At 0.05 levels, the questions under the Structural Capital constructs are accepted.

Questionnaire Response Rate on Relational Capital Construct

Table 8: Relational Capital Construct

S/N	Question Items	Mean	Std. Deviation	Remarks
17	We are skilled for collaborating with each other to diagnose and solve problems.	3.30	1.144	Accepted
18	We share information and learn from each other.	3.30	1.144	Accepted
19	We interact with customers, suppliers, alliance partners, etc., for developing new solutions	3.29	1.157	Accepted
20	We interact and exchange ideas with individuals from different areas of our organization.	3.30	1.144	Accepted
21	We apply the knowledge of one area of the organization when same problems and opportunities arise in another area.	3.30	1.144	Accepted

Sources: Field Survey, (2025).

The means and standard deviations of questions under Relational Capital

Construct is as shown in able 8 above. The results for one sample t-test of for means for questions under this construct are as shown in appendix F. At 0.05 levels, the questions under the Relational Capital Constructare accepted.

The means and standard deviations of questions under Technological Capital construct are as shown in Table 9 above. The results for one sample t-test of for means for questions under this construct are as shown in appendix F. At 0.05 levels, the questions under the Technological Capital constructs are accepted.

Questionnaire Response Rate on Employee Performance

Table 10: Employee Performance

S/N	Question Items	Mean	Std. Deviation	Remarks
27	My firm often adopts new techniques of work.	3.03	0.952	Accepted
28	The level of cooperation in my firm has encourage us to broaden our skills and knowledge.	3.80	1.161	Accepted
29	My firm efficiently utilizes benchmarking strategy.	3.77	0.964	Accepted
30	In my firm we maintain continuous improvement of quality processes which enhances customers' satisfaction.	3.29	1.138	Accepted
31	My firm often energize the employees focus on common goals	3.77	0.964	Accepted

Sources: Field Survey, (2025).

The means and standard deviations of questions under Employee Efficiency construct is as shown in Table 10 above. The results for one sample t-test for questions under this construct are as shown in appendix F. At 0.05 levels, the questions under the Employees' Performance constructs are accepted.

Test of hypotheses

Hypotheses Test

To test the hypothesis, responses from question 7-11 measures employees' perceptions on Human Capital denoted as HC, responses from questions 12-16, measures employees' perceptions on Structural Capital denoted as SC, responses from questions 17-21 measures employees' perceptions on Relational Capital denoted as RC and responses from questions 22-26, measures employees' perception on Technological Capital denoted as THC. The responses from questions 27-31, measures employees' performance

The first set of variables measures intellectual capital and the constructs are independent variables while the second set of variable measures employees' performance and is our dependent variable. The statistical tool for the analysis of the relationship between these set of variables in this research work is simple correlation analysis.

Hypothesis 1

The result of the correlation between Human Capital (HC) and Employees' Performance (EP) is as shown in Table 11. The correlation coefficient between Human Capital (HC) and Employees' Performance (EP) is 0.887. This value implies that there is a strong positive relationship between Human Capital (HC) and Employees' Performance (EP) in plastic firms in Anambra State, Nigeria. This correlation is statistically significant at 5 percent level with a p-value

of 0.00. Thus Human Capital (HC) increases Employees' Performance (EP) in plastic products manufacturing firm's employees in the Anambra State, Nigeria.

A regression of Employees' Performance (EP) on Human Capital (HC) affirmed the result of the correlation analysis as the regression coefficient (0.859) is statistically significant from zero with the R square of the regression showing that 78.63 percent of variation seen in Employees' Performance (EP) is accounted for by Human Capital (HC). (See the appendix G for regression tables).

Correlations

		Human Capital	Employee Performance
Human Capital	Pearson Correlation	1	.887**
	Sig. (2-tailed)		.000
	N	174	174
Employee Performance	Pearson Correlation	.887**	1
	Sig. (2-tailed)	.000	
	N	174	174

**. Correlation is significant at the 0.01 level (2-tailed).

Hypothesis 2

The result of the correlation between Structural Capital (SC) and Employee Performance (EP) is as shown in Table 12. The correlation coefficient between Structural Capital (SC) and Employee Performance (EP) is 0.680. This value implies that there is a strong positive relationship between Structural Capital (SC) and Employee Performance (EP) in the selected plastic products manufacturing firms in Anambra State, Nigeria. This correlation is statistically significant at 5 percent level with a p-value of 0.00. Hence Structural Capital (SC) increases Employee Performance (EP) in plastic products manufacturing firms in Anambra State, Nigeria. A regression of Employee Performance (EP) on Structural Capital (SC) affirmed the result of the correlation analysis as the regression coefficient (0.646) is statistically significant from zero with the R square of the regression showing that 46.3 percent of variation seen in Employee Performance (EP) is accounted by Structural Capital (SC). See the appendix for the regression.

Correlations

		Structural Capital	Employee Performance
Structural Capital	Pearson Correlation	1	.680**
	Sig. (2-tailed)		.000
	N	174	174
Employee Performance	Pearson Correlation	.680**	1
	Sig. (2-tailed)	.000	

N	174	174

**. Correlation is significant at the 0.01 level (2-tailed).

Hypothesis 3

The result of the correlation between Relational Capital (RC) and Employee Performance (EP) is as shown in Table 13. The correlation coefficient between Relational Capital and Employee Performance (EP) is 0.919. This value implies that there is a strong positive relationship between Relational Capital (RC) and Employee Performance (EP) in plastic products manufacturing firms in Anambra State. This correlation is statistically significant at 5 percent level with a p-value of 0.00. Relational Capital (RC) increases employees' performance of plastic products manufacturing firms in the Anambra State, Nigeria.

The regression of Employees' Performance (EP) on Relational Capital (RC) affirmed the result of the correlation analysis as the regression coefficient (0.873) is statistically significant from zero with the R-square of the regression showing that 84.5 percent of variation seen Employee Performance (EP) is accounted by Relational Capital (RC) .See the appendix for the regression.

Correlations

		Relational Capital	Employee Performance
Relational Capital	Pearson Correlation	1	.919**
	Sig. (2-tailed)		.000
	N	174	174
Employee Performance	Pearson Correlation	.919**	1
	Sig. (2-tailed)	.000	
	N	174	174

**. Correlation is significant at the 0.01 level (2-tailed).

Discussion of Findings

Human Capital and Employee Performance

In carrying out the analysis in order to achieve the objective of the study, the hypothesis was formulated and tested using the Karl Pearson's Product Moment Correlation while also conducting preliminary diagnostic on the data collated before analysis. The diagnostics shows the Cronbach's Alpha which was the reliability for both human capital and employee performance was above the acceptable limit of 0.5 (0.812 and 0.808 respectively) meaning that all the question items used in measuring the human capital and employee performance among employees were reliable. This is probably so based on the fact that the questionnaire was adoption of the standard scales. The reliability test also did show that the removal of any of the question items developed to measure the both variables in the study were to reduce its reliability. In addition, the Principal Component Analysis (PCA) was used in determine the construct validity of the factors under study, the PCA values for human capital loaded the question items together, having a score above 0.5 and the same for the five questions developed for employee performance. The sampling adequacy test using the Kaiser-Meyer-Olkin also showed a significant value (0.710) meaning that the sample size of 181 was adequate**.**

Having established the reliability of the study, the test of relationship was carried out to ascertain the level of correlation that exists amongst the selected variables using the Karl Pearson's Product Moment Correlation test. The test showed a result that was both positive and significant (r= 0.887, p-value = 0.000). This result implies that the alternate hypothesis is accepted, while the null hypothesis is rejected (see alternate hypothesis-Hi as stated above). This means that human capital has a positive significant relationship with employees' performance in selected plastic products manufacturing firms in Anambra State, Nigeria. This relationship could also be said to be significant and direct, because as human capital increases, the level of employees' performance in Plastic products manufacturing firms in Anambra State, Nigeria, also increases.

The positive relationship discovered between human and the level of employees' performance is widely supported by many authors (Buallay, et al, 2020; Daud and Yusoff, 2010; Tastan and Davoudi, 2015 and Pitelli-Britto, 2014). Human capital is also one of the key intellectual capital variables that cut across a wide spectrum of organizational behavior literature, either way, because of its requirement for organizational competitiveness and survival. The result is in consonance with findings of the above researcher because employee performance involves the creation of the best social and economic conditions of the organization's activity in terms of achieving the goals and strategies set forth by the organizational management, within the prescribed period at specified qualitative and quantitative efficiency indicators and least-cost resources (Lyapina, Sibirskaya, and Stroeva. 2014).. Finally, this findings confirmed with the theory of human capital by Becker (1993) which recommends that employees who invest in training and education will improve their skill level and be more productive than those less skilled, and so can justify higher earnings as a result of their investment in human capital .Becker (1993) attests that schooling increases earnings and productivity solely by providing knowledge, skills and a way of solving issues. This dimension or variable of intellectual capital in relation to performance form the general basis of assessing the extent an employee is performing his work related responsibility within the organizational context in order to add more value to the organization.

Structural Capital and Employee Performance

Similar to the first hypothesis tested, the researcher also having established the reliability of the study, the test of the relationship was carried out to ascertain the level of correlation that exist between structural capital and employee performance among employees in the Plastic products manufacturing firms in Anambra State, Nigeria while making use of the Karl Pearson Product Moment Correlation test. The reliability test for structural capital also produced an alpha level which was above 0.5 (0.853), while the question items for employee performance also produced a value of (0.808), which was also higher than 0.5. On the validation of the constructs, like human capital, the chi-square value of (1.503), with the Kaiser-Meyer-Olkin (KMO) of (0.710) at 0.000 implying that the sample is adequate and also explains over 70% of the distribution. The test showed a result that was both positive and significant (r= 0.680; p-value = 0.000). This result implies that the alternate hypothesis was accepted, while the null hypothesis was rejected (see alternate hypothesis-Hi as stated above). It also means that an increase in the provision and implementation of structural capital would also lead to an increase in employees' performance in Plastic products manufacturing firms in Anambra State, Nigeria.

This finding was equally strong in the entire hypotheses tested. The results indicated a relationship that was not just positive and significant, but had a correlation coefficient of over 0.5. The implication of this result is that, if structural capital and employees' performance were quantifiable values, a unit increase or implementation in the intellectual capital influenced by structural capital would lead to more than 50% effect in the overall state of employees' performance.

However, more than half of the overall employees' performance owes to the level of structural capital enjoyed by these employees. Structural capital is no doubt an aspect of intellectual capital. This finding is in consonance with the results of the previous studies conducted by Buallay et al (2020) and Holman (2013) which found that structural capital has a positive significant relationship with employees' performance in selected Plastic products manufacturing firms in Anambra State as it determines employees' level of attachment and locus of control in

relation to quality performance in the organization. Hashim and Athabsti (2015) supports the result of this study by maintaining that employees may display high work performance because of the provision and presence of structural capital which Ordonez De Pablos, et al (2013) described as supportive infrastructure, processes, and databases of the firm that influence human and social capital to perform at optimal level. Ideally, structural capital consists of intangible assets of the organization in terms of processes, patents and trademarks. The result of a study conducted by Walsh and Linton (2011) correlates with this finding as employees will perform optimally within the sphere of implementation and utilization of intellectual capital to enhance overall organizational performance as a way of reciprocating for the provision of structural capital. Even Leana and Pil (2006) and Chu and Choi (2000) supports this finding by stating that at times, organization invests its resources in maintaining structural capital and the employee can accept to work within any intellectual capital options. These findings and that of others have pointed to the fact that structural capital literature can further be expounded in other circles as having been done within the Plastic products manufacturing firms in Anambra State, Nigeria.

Finally, the result of this hypothesis affirmed the Resource Based View theory by Penrose (1959) which states that a firm's superior performance is attained through resources, which are owned and controlled by the firm. The theory of intellectual capital has its foundations from management and macroeconomic theories. Kolaković, (2003) asserts that the theory concern intellectual capital is a new idea which is emphasizes on the assumption that, in the contemporary circumstances, intangible assets not included in the balance sheet are very vital for the daily operations of the organization, since they can positively influence the value of assets or the market value of the organization. He maintains that Resource Based View theory is focused on the belief that the wealth of the organization rooted on the human, technological, structural and relational capital, and value is created by changing one form of capital into another form.

Relational Capital and Employee Performance

To investigate the extent of relationship between relational capital and employee performance in selected Plastic Products Manufacturing Firms in Anambra State, Nigeria.

Similar to the steps in carrying out the analysis in achieving other objectives of the study, hypotheses were formulated and tested using the Karl Pearson's Product Moment Correlation, whist also carrying out preliminary diagnostics on the data collated before analysis. The diagnostics shows the Cronbach's Coefficient Alpha which was the reliability for both relational capital and employee performance was above the acceptable limit of 0.5 (0.886 and 0.808 respectively) meaning that all the question items used in measuring relational capital and employee performance among employees were reliable. In addition, the Principal Component Analysis (PCA) was used in ascertain the construct validity of the factors under study, having a score above 0.5 as other factors (See Appendix).

Having established the diagnostics of the factors under study, the test of relationship was carried out to ascertain the level of correlation that exists amongst the selected variables using the Karl Pearson's Product Moment Correlation test. The test revealed that was both positive and significant ($r = 0.919$; p-value = 0.000). This result implies that the alternate hypothesis is accepted while the null hypothesis is rejected (See alternate hypothesis- H_i as stated above). It reflects that relational capital has a positive significant relationship with the employees' performance in selected plastic products manufacturing firms in Anambra State, Nigeria. This relationship could also be said to be significant and direct as intellectual capital resulted by relational capital increases or decreases, the level of employee performance amongst employees in the plastic products manufacturing firms will also increases in the ratio.

The result as shown is one that is fully supported by empirical studies under review. The major support owes to the positive relationship found between relational capital and the level of employees' performance. Ibarra et al (2019) and Wang et al (2018) as major contributors on the study of intellectual capital induced by relational capital has also stated that there is a positive significant relationship between relational capital and employees' performance. The significant result may also owe to the views of Andrews (2011) where he explained that relational capital in an

organization increases productive relationship and interactions among employees of organization. This does only improve in knowledge sharing but as well as influences performance of organizations. This correlates with the findings of Narwal and Yadav (2017), and Zheng and Zhu (2014) which evaluate this alternative intellectual capital as the best efficacy to improve employee performance in organization. This result could also owe to the deep-seated redundancy in the Nigerian workplace, one factor that would mean that employees might be less committed in their job thereby not getting so much constrained by performing the tasks contained in the job. As stated earlier, it would be good to study relational capital in the context of a public setting, but studying it in this private setting (plastic products manufacturing firms) has definitely filled a research gap as no known study has been conducted in this area to the knowledge and experience of the researcher.

Also this finding affirmed the Knowledge Based View theory which emphasized that relational capital is central source of competitive advantage, because such knowledge resources are hard to imitate, socially complex, immobile and heterogeneous. The theory of Knowledge Based View further validates that knowledge-related resources add more value for achieving employees' performance than tangible assets (Grant, 1996b). Besides, knowledge within employee and it's obligatory for managers to integrate such employee owned knowledge by providing structural arrangements of co-ordination and cooperation among specialized knowledge employees.

Conclusion

Based on the results of this research the plastic products manufacturing firms in Anambra State and indeed in Nigeria adopts intellectual capital based on the nature of work and environmental conditions as a means of increasing employee performance. This mode of work operations adopted by the plastic products manufacturing firms largely depend on the implementation of various dimensions of intellectual capital which influence employee performance. The major types of intellectual capital, which the plastic manufacturing firms adopts, are human capital, structural capital, relational capital and technological capital. However, the male employees dominant in the plastic firms with age range of 26-35 years. The industry has retirement package for its employees and as such majority of the employees have spent up to 15 years in the industry. Most of the employees involved in various utilization intellectual capital were oriented and knew the nature and working conditions before they were assigned tasks to perform in the firms. The results showed that there is a positive significant relationship between human capital and employees' performance in selected plastic products manufacturing firms in Anambra State, Nigeria. Also, positive significant relationship exists between structural capital and employees' performance in selected plastic products manufacturing firms in Anambra State, Nigeria.

Besides, there exists a positive significant relationship between relational capital and employees' performance in selected plastic products manufacturing firms in Anambra State, Nigeria. Finally, a positive significant relationship exists between technological capital and employees' performance in selected Plastic products manufacturing firms in Anambra, State, Nigeria. The findings of all the studied variables of the intellectual capital indicated positive significant relationship with all the studied indicators of employee performance in the plastic products manufacturing firms in Anambra state. The implication of these findings is that intellectual capital is an important organizational tool that influences higher employees' performance in plastic products manufacturing firms in Anambra State, Nigeria.

Recommendations

Based on the findings and conclusion, the following recommendations are made:

1. Organizations should increase their investment in the development of human capital to improve employee performance and enhance sustainable growth and organizational performance.
2. The managers should restructure their structural capital to improve employee performance and earn higher market value for their products. This restructuring lead to skill development and the enhancement

of the knowledge of the knowledge employees, which, in turn, will facilitate the innovation in product and process.

3. The owners and managers of plastic products manufacturing firms should develop, protect, manage and sustain relational capital to increase employees' awareness towards achieving higher competitive advantage for the firm.

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