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Interaction Effect of Intellectual Capitals on University Performance

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Author's contribution

The sole author designed, analyzed, interpreted and prepared the manuscript.

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ABSTRACT

Intangible assets constitute major resources in the university's system. However, little or no attention has been given to effective utilization of these resources. This has not only affected the performance of the public universities in Nigeria adversely but also the economic development of the country. Hence, this study examined the effect of the interaction among intellectual capital components on the performance of public universities in South-Western Nigeria. The primary data obtained through the structured questionnaire administered on four hundred and twenty-four (424) respondents were analyzed using ordinary least square regression analysis. The result of the study revealed that the interaction between human capital and structural capital and the interaction between human capital and relational capital has significant positive effect on the performance of public universities in the South-Western Nigeria as indicated by p-values of 0.000 and 0.002 respectively. The result also shows that the interaction between structural intellectual capital and relational capital has an insignificant positive effect on the performance of public universities in the South-Western region of Nigeria as indicated by p-values of 0.139. This study therefore concluded that effective combination of the intellectual capital components improves the performance of public universities in the South-Western region of Nigeria. This study recommends that government at various levels should pay attention to funding strategies of higher education, particularly at university level. Innovative funding strategies that touch all aspects of university activities should reflected in the budget of university education from time to time to translate the expected mandate of ivory tower to reality.

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1. INTRODUCTION

Higher educational institutions particularly Universities are critical institutions that play a crucial role in the development of any nation through their knowledge based activities especially in a developing country like Nigeria. For this great sub-sector of any nation to perform creditably well in their core mandates of research, teaching and community development, both tangible and intangible resources are of great important. Though, tangible assets are input factors for all organizations, a knowledge-based institution like university relies more on intangible assets as input to sustainably achieve its roles. Thus, conscious and scientific efforts in the management of intangible assets, which is synonymous to intellectual capital, are inevitable for a university to continue its support for any nation striving towards knowledge and technological advancement. In this era of information age, global economy seems to have shifted its reliance from tangible economic drivers to knowledge driven intangible resources [1].This paradigm shift can be said to be informed by the desire to create value and economic wealth [2,3,4]. Now educational institutions are regarded as center of innovations and innovative human capital development.

In Nigerian context, the extent to which Universities can be described or regarded as centers of innovation and innovative human capital development is of great concern, given the constant dropping of Nigerian universities in the world ranking as well as the inability to compete with their counterparts in the world. For instance, the best University in Nigeria (University of Ibadan) is ranked 991th position in the world ranking of Universities for the year 2019, the second best University (Ahmadu Bello University, Zaria) was ranked 1,787 while the third best Nigerian University was nowhere to be found on the list of two thousand Universities ranked in the world [5]. The ranking of these Universities in the world is usually base on the quality of education, Alumni employment, quality of faculty and research performance [5].

These ranking indexes are mainly acceptable performance indicators of a university system that reflect efficient and effective management of both physical and intellectual capital. A cursory look at strategic management literature reveals two main theoretical streams that explain performance variability of an organisation/ institution. The first, industrial organisation economic, predicated variation in performance on the structural characteristics of the sector in which an organisation operates, while the second theory, Resources Based View (RBV) hinge variability in organisation performance on internal, idiosyncratic resources as the most critical factors [6,7,8]. Scholars [9,10,11,12,13,14,15] in the field of organisation performance management are substantially aligned with RBV view. Thus, this paper argue and propose that the not-too encouraging ranking of Nigerian Universities can be substantially attributed to the level of concerted efforts on the management of intellectual capital, an internal and of course idiosyncratic resources, though industry structure cannot totally be excluded [16] affirms the fact that Universities, particularly in developing world, face challenges in the effective management of their intellectual capital and the development of appropriate strategies to realize the potentials of these invaluable resources.

The trio of low ranking in all areas of University performance indicators attributed to Nigerian Universities, the postulate of the RBV that idiosyncratic resources (intellectual capital in this context)may substantially explain variation in university performance and the concern raise on the challenge facing the ivory tower in the management of resources motivate this research effort to empirically investigate the extent to which the management of intellectual capital(IC) explain variability in performance of Nigerian Universities in south western Nigerian. In specific term, our research effort was directed towards the impact measurement of individual and interaction effect of intellectual capital components (Human, relational and structural capital) on University performance.

Though empirical evidence are available on the relationship between IC and University performance, much of these evidence relate to research efforts in developed countries and developing nations outside the shore of west African sub-region [1,17,18,19,20,21,22,23,24]. Available empirical studies in this line of research i.e intellectual capital management and performance are much of conflicting findings. Studies such as [1,17,18,19,20,25] reported significant positive relationship between intellectual capital and performance, on the other

hand empirical findings of [26,27] revealed negative relationship. This trend is an indication that empirical consensus on the extent to which intellectual capital positively explains variation in University performance still needs further research efforts. Donors and players in the private sectors can as well find this study's useful for various decisions in strategic alliance and corporate social responsibility.

2. THEORETICAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

The earlier argument of Scholars [9,10,11,12,13,14,15] in the field of organization performance management are substantially aligned with Resource Base View (RBV) assertion that performance variability can be attributed to internal factors (which include internal resources like intellectual capital) forms the theoretical framework underpinning this study. In essence, the proposition that university performance variability can be substantially attributed to management and use of intellectual capital in an interactive dimension is informed by the assertion and prediction of RBV.

Accordingly, RBV assumes [7,28] that the ownership or the control of valuable resources along with the capabilities that integrate, build or reconfigure resources base mostly determine which organisation perform better. In other words, the theory focuses on the application of internal resources of the organization to achieve its objective as well as creating a competitive edge over its competitors. Resource-based theory opined that human resources cannot work without having materials and a conducive working environment which ensure smooth running of organisation (University, in context of this study).

Based on the assumption and prediction of RBV, this study's a-prior expectation is that a university with robust intellectual capital management would have better performance in the three strand of teaching, research and community development.

2.1 Conceptual Clarification of the Research Variables

In agreement with [29], It may be difficulty if not impossible to see common clear definition that would appropriately describe the term intellectual capital (IC).Notwithstanding the foregoing, Stewart's definition of IC as a formalized, captured and enforced assets that generate advanced value to the organisation, seems to be widely recognized. This is evident in description of IC by [30] as a market premium and Botis [31] as reflection of effective experience and knowledge against company's data. In similar pattern, [32] defined intellectual capital as what helps company to be sustainable and have competitive advantage in the future as well as an indicator of whether a company will be maximizing value. By these definitions,IC can be assertively described as the current and future values-enhancing resources implicit and explicit in any organisation that has clear cut objective [33] definition of IC as factors consisting of knowledge, experience, information and skills which have a strong influence and effect on the current and future progress of an organization and as well increase an organization ranking among its competitors seems to lend more support to our assertion on IC.

By extension, description of IC as value-enhancing resources fairly applicable to education sector especially University [34]. defined intellectual capital with the help of definition given by European commission [35] as the collection of intangibles which allows an organization to transfer a collection of material, financial and human resources into a system capable of creating value for the stakeholders [34] define intellectual capital of a university system as the term that covers an institutions non-tangible assets and includes patents, copy right, process, innovation capacity, society's recognition, members knowledge and their capabilities, skills and abilities, its network and contacts.

In reflection to the preceding review of IC definitions, this study clarifies IC of a University as the combination of the intangible resources which enhance its values in term of a competitive edge and effectively meeting its core mandates of teaching, research and community development. These intangible resources include includes human resources (academic and non-academic staff), library, internet facilities, conducive lecture rooms, patents, copyright, processes, innovation capacity, society's recognition, member's knowledge and their capabilities,skills and abilities, its network and contacts. In a precise term, Intellectual capital management is denoted, in this study, as all management techniques (particularly, planning, organizing and controlling) employ to actualize the value-enhancing attribute of IC in a University setting.

As stated in our adapted definition, IC components are numerous but several scholars [29,36,37,38,39] have allocated IC into three or four, depending on the nature of organisation under focus. These are: human capital (HC), customer/relational capital (CC/RC), structural capital (SC).There seem to be consensus in the literatures as to the meaning of HC as our review [37,40,41,42] reveals that HC represents individual knowledge asset of company in the form of competency, experience, and skills.

With respect to CC/RC, [31] described it as the potential of an organisation with regard to its stakeholders while, [43] defined it to entail the knowledge of relationship from stakeholders..Relational capital of university system include the extensive collection of economic, political and institutional relations developed and upheld between the university and its non-academic partners, non-profit making organization, local government, enterprises and the society at large, the perception other have about the university, its image, consistency, reliability, stable calendar, etc. [44].

Structural capital is another important component of intellectual capital. Structural capital refers to the worth and value created within the organization that remains when all employees go home/left. [45,46,47,31] described SC to entail *'all the non-human storehouses of knowledge in organizations, which include databases, organisation charts, process manuals, strategies, routine and anything whose value to the company is higher than its material value'.* Structural capital includes of all non-human assets such as infrastructural facilities that are wholly owned to the organization and stay in it which provide a basis for organization's growth, provides better working conditions, increase knowledge sharing as well as helps in increasing productivity of the organization and people [45,46,47,48].

Organization performance can be viewed based on the objectives or mandates expected an entity to achieve [49]. Organization that are not profit-oriented like public university, key performance indicators relating to the mandates or objectives of a public university system have been cited in the literatures. Researchers such as [20,50,51,52] posit that the university's performance could be viewed from three aspect which include the educational performance, research performance and transferring performance. In line with this assertion, University performance is described and measured in term of knowledge, research contribution, publications, educated student and internal and external relations with stakeholder.Specifically, University Research performance indicators include number of publications (articles and journals), total research fund, number of patents and citations [44,33,51]. while Education performance include the number graduated bachelor's degree, average academic qualifications, the number of finished Ph.D. and masters theses, average length of study of the students, rate of rejected students and graduate rate (that is number of graduate divided by number of first- year enrolled students) [26,20].

2.2 Empirical Review and Hypothesis Development

Supporting roles of intellectual capitals in enhancing organization performance have received attentions in extant literatures [38,53] are good examples of scholars rendering argument on performance enhancing roles of IC. Specifically, the two scholars premised that control and exploration of knowledge-based resources increasingly support sustainable and strong competitive results. Similarly, [32,54,55] attest to value-creation capabilities of organization IC.

Available empirical evidences in developed world [21,22,24,47,56,57,58,59,60] to greater extent, lend credence to preceding arguments [21] in their study revealed evidence on the positive impact of intellectual capitals on academic performance in Italian Universities within the period of 2000-2007.The teaching load, as an intellectual capital and other physical resources (financial resources, university size) were reported to have significant positive impact on academic performance. Studies of [47] examined intellectual capital management in the fourth stage of intellectual capital research evidence from Cafascori University in Venice, Italy. Evidence from semi- structured interview of twelve [12] board members of the university revealed that it is appropriate to include a wider set of intangible assets that relate to a university external environment. In the same vein, [24] investigate the interconnections of academic research and universities third mission with evidence from the United Kingdom. Information from database for one hundred and nineteen (119) higher education chosen as sample for the period 2007 to 2014 and analyzed through robust efficiency estimators (order-m) revealed

that all the universities have room for improvement in terms of income generated by industrial engagement activities. Similar significant positive impact of Intellectual capital management and disclosure on organization outcomes, ranging from efficiency, knowledge production, and research and teaching performance, users /customers satisfaction and corporate images across different sectors of economy were empirically reported [56,57,58,59,60].

Research efforts on IC have also been reported in developing countries. Empirical evidences observed in the literatures on intellectual capital management of Jordan universities' [17], private universities in Pakistan [25] and [18], in Padang State University [61], a case study of Universities in Iran [26], and survey study also in Iranian University [27] all revealed significant positive relationship between IC and performance of organizations. Specific findings of some of these studies are briefly reviewed: [17] examined the impact of intellectual capital on realizing University goals in a sample of Jordanian universities. The result of the study revealed that intellectual capital has a significant effect on university performance in meeting its goal, with conclusion that leadership, human capital and relational capital have in general a significant effect on realizing majority of university goals more than structural capital [25] investigated the effect of intellectual capital on performance of private universities in Pakistan. The results, based on the administered structured questionnaire to five hundred (500), indicate that intellectual capital components (human capital, structural capital and relational capital) have strong effect on the performance of private universities in Pakistan. In context of the findings, the study concludes that human capital is the major contributor in private universities that directly and indirectly affecting structural capital and relational capital significantly [18] also assessed the relationship between intellectual capital and its three components on the performance of universities in Pakistan. The survey study eight hundred (800) students of public and private universities in Pakistan affirmed that all three components of intellectual capital have significant relationship with performance. Using similar survey design, [27] investigate the effect of intellectual capital on performance of Islamic Azad university of Ghaemshahr branch in Iran and reported that human capital and relational capital have significant effect on the performance of the university while structural capital was found to be insignificant. The research consensus on the positive impacts of intellectual capitals on performance may be attributed to the similar research design adopted by these studies as well as RBV assertion discussed above. However, [26] research efforts on a case study of Islamic Azad university of Khuzestan, shows that human capital, structural capital and relational capital are not important in determining its performance. A single contrasting finding of this nature may not suffice to refute the RBV assertion.

Given the prediction of organisation performance variation attributed to effective utilization of intellectuals capitals and supporting previous empirical evidences, this study hypothesizes that:

H0: there is no significant positive interaction of intellectual capital components on University performance

3. MATERIALS, METHODS AND METHODOLOGY

This study employed survey approach to provide evidence on the extent to which the interactive effect of intellectual capital management explain variation in performances of Universities South-Western region in Nigeria. Almost all the Universities in this region have been in existence for more than ten (10) years. Before sending the survey instruments to potential respondents, it was pre-tested with senior academics with expertise in this line of study to verify the clarity, understandability and ambiguity of the measurement question, [62] and appropriate adjustment was made accordingly. The corrected instruments were distributed to academic and non-academic personnel in the sampled Universities through e-mail and physical contact. These personnel ranging from principal officers of the Universities, Deans of faculties to Head of Department believed to be knowledgeable about intellectual capital practices of Universities since they are primary and critical stakeholders on both tactical and operational affairs of the institutions. In specific term, questionnaires were administered to Four Hundred and Twenty Four (424) respondents purposively and randomly selected from 982 potentials participants as determined by the use of [63] sample size determination technique. Out of the 424 sample size, sixty principal officers were purposively selected while the remaining 364 respondents (comprising of 98 Deans and 266 Heads of

Department) were selected randomly. With moderate follow-up, 384 usable instruments were received representing, 91% response rate. This may be attributed to the highly level of education of the sampled respondents.

This study's variables were operationalized and measured through the adoption of validated instruments used in previous empirical studies. In the first instance, Human capital components of IC was measured through nine measurement questions adapted from [17,64,34,20]. These measurement questions, were designed to reflect the proportion of academic staff to non-academic staff, number of academic staff with PhD qualification and on the professorial cadre, frequency of holding academic seminar and number of sponsored conferences and workshops. For the structural capital, six measurements questions were used to reflect its existence and quality. These measurement questions were sourced and adapted from the studies of [65,21,16]. Eight measurement questions adapted from [66,27,47,51] reflected the management and quality of relational capital in this study. The conceptual domain of University Performance, dependent variables, were measured through nine measurement questions relating to the extent to which universities are effective in the three core mandates of teaching, research and community development. All these questions were adapted from the studies of [67,18,33]. Response format to these questions was on the likert-scale of one to five (1-5).The reported survey were descriptively analyzed with mean score ranging between 3.5 to 4.00 to all the surveyed items, indicating the existence of intellectual capital management in the sampled universities. Detailed result of the descriptive analysis is given in Table 1.

The test was carried out in term of reliability, validity; normality and multicollinearity of the instrument items and construct level. Reliability of the instrument is assessed through Cronbach's Alpha (CA).Given the critical value for CA to 0.5 06 0.6 [68] all the variables reflect high values of Cronbach's Alpha, showing high internal consistency, as shown in Table 1.

For construct validity, Principal Components Analysis (PCA) was used to extract loadings for the variables under consideration. However before conducting the test, suitability of the data for factor analysis was assessed through Kaiser-Mayer-Olkin (KMO) coefficient and BarlettSphericity Test [69]. KMO value was found to be above 0. 6 and acceptable in principal components factor analysis. Another indicator of the strength of the relationship among variables is Bartlett's test of sphericity. In this study, the observed significance level was $p < 0.001$. It is concluded that the strength of the relationship among variables was strong [70]. Results of the test is presented in Table 2.

As presented in Table 2, the study employed Kaiser's criterion to choose the components that have an eigenvalue of 1 or more using total variance and eigenvalue for each component. For human capital management, the result of the principal components analysis revealed the presence of three components with eigenvalues exceeding 1, with 2.558; 1.782; and 1.122 are extracted which explained 54.62% of the total variance. The factor loadings for structural capital management showed that there are two uncorrelated factors with eigenvalues of 2.566 and 1.139 are extracted, which explained 61.75% of the total variance. Furthermore, the factor loading for relational capital management revealed that there are three uncorrelated factors with eigenvalues of 2.531; 1.410; and 1.001 are extracted and this explained 61.78% of the total variance. For university's performance, the result of the principal component analysis showed that there are four uncorrelated factors with eigenvalues of 2.272; 1.296; 1.107; and 1.004 which account for a cumulative 63.54% of the total variance.

The result in Table 4 shows that the components of the research instrument actually measured what it purported to measure. The study conducted a normality distribution test through the use of skewness and kurtosis.As depicted in Table 4, all variables did not suffer from normality distribution problems since all skewness and kurtosis values are within range of -3 to +3.

The study tests for Multi-collinearity using Variance Inflation Factor (VIF) and Tolerance level among the independent variables.

Based on the result in Table 5, none of the independent variables used in the study has variance inflation factor greater than 10 and tolerance values less than 5% level of significance, indicating absence multi-collinearity.

4. RESULTS AND DISCUSSION

The main thrust of this study is to empirically reveal the extent to which variation in university performance is explained by interaction effect of intellectual capital components (Human,

structural and relational capital) through the testing of hypothesis raised.

The regression results in Table 6 provide empirical evidence for the evaluation of the hypothesis. The regression result is based on the model specified below:

This study adapted model used in previous research by Ofurum and Aliyu Their model focused only on human capital measure in three dimension(training, technical skill and managerial skill) as it affects performance, this study modified the model equation by including structural capital and relational capital. In essence, the basic model of this study is written as:

UP = *f*(ICM, IICC)……..…….. (1)

UP = *f*(human capital, structural capital and relational capital) …… (2)

$UP = \beta_0 + \beta_1 HCM\iota + \beta_2 SCM\iota + \beta_3 RCM\iota + \beta_{4a} (HCM \times SCM)\iota + \beta_{4b} (HCM \times RCM)\iota + \beta_{4c} (SCM \times RCM)\iota + \mu$ ……..… (3)

Where:
ICM = Intellectual capital management
UP = University's performance
EP = Education performance
RP = Research performance
HCM = Human capital management
SCM = Structural capital management
RCM = Relation capital management
IICC = Interaction among intellectual capital components
β_0 = Constant Coefficient
β_{1-4} = Parameters of the estimate
μ = Error term (5% significance level)

a-priori expectation

The a-priori expectation of this study is that $\beta_1, \beta_2, \beta_3$ and $\beta_4 > 0$
And all the reported estimated co-efficient are now included thus:

$UP = \beta_0 + 0.242HCM\iota + 0.218SCM\iota + 0.384RCM\iota + 0.443 (HCM \times SCM)\iota + 0.321(HCM \times RCM)\iota + 0.077 (SCM \times RCM)\iota + \mu$ …… (4)

Although, the main study hypothesis is on the significant interaction effect of intellectual capital components, the result also reveals the effect of individual intellectual capital on performance. Accordingly, human capital (t-value=3.691, P-value < 0.05); structural capital (t-value=5.129, P-value <0.05)and relational capital(t-value=6.508,P-value < 0.05) management have individual positive effect on performance of university in south western Nigeria. By inferences, the extent to which these resources are deployed individually in the pursuit of university objectives is critical to its competitive edge and survival from time to time. Evidence of significant positive effect of individual components of intellectual capital on performance may not be enough to affirm their interaction effect, thus evidence on such is inevitable.

At interaction level, university performance are positively explained by the significant interaction effect of human capital and structural capital(t-value=7.911;P-value<0.005) and, relational capital and human capital(t-value=9.441;P-value<0.05) while the interaction effect of relational capital and structural capital was not significant(t-value=1.484;p-value >0.05).On this note, the study failed to accept the first two sub-hypothesis on the interaction effect of human capital and structural capital, and relational capital and human capital while statistical evidence was not enough to maintain the confidence level that may warrant the failure not reject the third sub-hypothesis.

It can be inferred from observed evidence that the extent to which academic staff of university are being managed in term of training, through seminar, workshop, conference and other professional engagements and remunerated with adequate provision of enabling environment (availability of quality infrastructural facilities) may goes a long way to impact on University performance .By implication, as long as university mandates is primarily on the teaching and generation of innovative knowledge, effective working relationship between availability of physical and human resources can be argued to be germane for any University settings to achieve and maintain competitive advantages.

Similarly, the openness of University in the form of collaborations in different faces of human endeavors such as students exchange programmes, basic and applied research linkages with industries and strategic partnership with government in the provision of intellectual and other consultancy services and consistent motivation of the human resources through appropriate devices can be said to have positive impact on university performance, given the statistical evidence observed in this study. These findings are in consonant with the resources-based assertion that effective usage of resources (physical and human resources) translate into

higher level of organization performance. Previous empirical evidences such as [1,20,22] on variation in the performance of university as explained by individual components of intellectual capital can be said to partially lend credence to the interactive impact of human and structural capital, as well as human and relational capital on university performance, given the rare empirical work, although to the extent of literature search.

Table 1. Descriptive Statistics of Survey Items and Reliability Test

S/N	Variables	Range	Cronbach's Alpha
001	Human Capital(HC)	1-5	0.737
002	Structural Capital (RC)	1-5	0.743
003	Relational Capital	1-5	0.763
004	University Performance	1-5	0.751

Source: Author's Computation, 2021

Table 2. KMO and Bartlett's Test

Variables	HCM	SCM	RCM	UP
Kaiser-Meyer-Oklin measure of sampling adequacy	0.656	0.733	0.667	0.623
Bartlett's Test of Sphericity Chi-Square	633.780	490.393	518.231	381.696
P-value	0.000	0.000	0.000	0.000

Source: Author's Computation, 2021

Table 3. Results of Factor Analysis

HC	Factor Loading	SC	Factor loading	RC	Factor loading	UP	Factor loading
H5	**0.686**	**S4**	**0.801**	R1	**0.713**	UP7	**0.716**
H10	**0.652**	**S3**	**0.752**	R2	**0.652**	UP8	**0.641**
H1	**0.604**	**S1**	**0.739**	R4	**0.648**	UP4	**0.571**
H9	**0.557**	**S6**	**0.677**	R7	**0.577**	UP5	**0.556**
H4	**0.543**	**S5**	**0.593**	R6	**0.548**	UP1	**0.506**
		S2					
H6	**0.501**		0.432	R5	0.450	UP2	0.480
H3	0.496			R8	0.427	UP6	0.360
H8	0.469			R3	0.402		
H7	0.444						
H2	0.376						

Table 4. Normality Distribution Table

Variables	UP	HCM	SCM	RCM	SIZE	MAT	OWN
Skewness	-1.280	-1.538	-0.925	-1.010	-0.480	1.565	2.199
Kurtosis	1.565	2.281	-0.116	0.276	1.067	-1.370	-0.768

Source: Author's Computation, 2021

Table 5. Multicollinearity Test: VIF and Tolerance Result

Variables	VIF	Tolerance
HCM	2.442	.410
SCM	2.363	.423
RCM	2.778	.360
SIZE	1.028	.973
OWN	1.498	.668
MAT	1.490	.671

Source: Author's Computation, 2020

Table 6. Regression Table

Variables	Coefficients	Std. Error	T-value	Sig.
HCM	0.242	0.066	3.691	0.000
SCM	0.218	0.042	5.129	0.000
RCM	0.384	0.059	6.508	0.001
HSIM	0.443	0.56	7.911	0.000
HRIM	0.321	0.034	9.441	0.002
SRIM	0.077	0.052	1.484	0.139
SIZE	0.037	0.017	2.131	0.034
OWN	0.209	0.089	2.340	0.020
MAT	-0.002	0.001	-1.624	0.105
Constant	1.743	0.235	7.407	.000
R^2	0.527			
Adjusted R^2	0.519			
F-statistics	69.890			
	(0.000)			

Source: Author's Computation, 2021

5. CONCLUSION AND RECOMMENDATIONS

The study was primarily put forward to provide empirical evidence on the extent to which the interaction effects of various intellectual capital components explain variation in the university performance. In general, this study provide empirical support that adequate provision of infrastructural facilities in the university environment with conscious management of human component of intellectual capital particularly in relation to academic resources appears to have positive significant impact on the university performances in its delivery of its mandate of teaching, research and community developments. The study's evidence similarly affirms the curiosity of this study that university relation with immediate and distant environment through collaborative activities of different pattern with effective human capital management appears to have influenced the competitive advantage of university in the discharge of its mandates.With these findings, it can be argued the going concern of a university as a citadel of learning and seat of knowledge generation depend on how intellectual capital resources are adequately managed and deployed in a combinative pattern.

In view of the foregoing, government at various levels should pay attention to funding strategies of higher education, particularly at university level. Innovative funding strategies that touchall aspects of university activities should be reflected in the budget of university education from time to time to translate the expected mandate of ivory tower to reality.

Some limitations of this study need to be noted. As survey research, this study is vulnerable to the typical weakness relating to the validity and reliability of items. However, best practices, as suggested in the literature, were deployed in the development and pre-testing of the instrument. Interaction of intellectual capital components using product term was examined; a reliable test for complementarity between the components requires the inclusion of appropriate bi-directional link which was not possible in this study. Aside from the foregoing, it would appropriate to exercise caution when interpreting statistical association of the causal relationship, given cross-sectional nature of this study. Another obvious limitation of this study is small sample size with a focus on particular geographical location in Nigeria this implies that any inferences from the result must be drawn with caution.

On this note, further studies with large sample scale are encouraged in context of intellectual capital management. Qualitative methodologies may also provide further insight into the intellectual capital management in a university setting.

CONSENT

As per international standard, participant'swritten consent has been collected and preserved by the author.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Author has declared that no competing interests exist.

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