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Creative Product and Wellbeing: Redefining Workers' Knowledge-Based Novel Culture

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Abstract

Creative product generates novel research output and patents which has been on the decline in Nigeria among academia when compared with other universities in both developing and developed countries. Therefore, this paper investigated whether flexible wellbeing elements such as, workload, mental health, life satisfaction, physical, psychological and technological work environment, has effect on creative product in selected private universities in South-West Nigeria. A cross-sectional survey research design was adopted and data were collected from 532 academic staff ranked as Senior Lecturer, Associate Professor and Professor from 8 selected private universities in South-West Nigeria through a multi-stage random sampling technique. The questionnaire was adapted; validity and reliability tests were conducted before it was administered. The result from multiple regression analysis revealed that flexible wellbeing elements had positive significant effect on creative product (*Adj.* $R^2 = 0.314$ (F (6, 525) = 41.561, $p<0.05$) in selected private universities in South-West Nigeria and the artificial neural network analysis showed technological work environment as the best individual predictor followed by physical and psychological work environment. It recommended that administrative policies regulating academic staff work-based-empowering wellbeing measures should be redefined and fine-turned to support academic staff members' knowledge-based culture and creativity to boost novelty, patents and scholarly research.

Keywords

Creative Product, Creativity, Flexible Wellbeing Elements, Mental Health, Workload

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1. Introduction

The creative product encompasses competency-based assumption that leverage on workers' technical proficiencies to deliver on established outcomes. It is related to constructs but is not limited to expert relations, learner evaluation, organizational dexterity, project and change administration, innovativeness, crucial investigative abilities, self-improvement, improvement of others, dedication to excellence, originality and ingenuity, decision-making, research subject mastery and the capability to defy conservative outlooks [55, 73]. As such, developing creativity is mutually beneficial for individuals and societies [72]. Hence the creative product is required to underscore novelty in the form of effectiveness and relevance, elegance and generalizability in research, international and national outlook and patent per capita.

Thus, developing originality require harnessing work-based-empowering flexible wellbeing coupled with an environment in which workers feel safe to explore, create, and offer new ideas [43, 86]. In view of this, universities in the 21st century are business-brands and serve as sources of financial growth for both the institution, the individual and the economy through novelty in research, teaching and community service

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[1, 74, 88; 98]; hence, universities are subjected to marketplace pressures and business society [2, 35]. [77] asserted that the higher education sector generates broader economic growth as well as individual success. For instance, the British higher education sector contributes at least £59 billion to the economy and generates about 2.3 percent of the annual Gross Domestic Product [GDP] [77].

Interestingly, higher education is identified as crucial to the attainment of economic wellbeing, innovation, and knowledge-driven growth [84]. This is so, because beyond awarding degrees and paying salaries, universities are also established to undertake research and publication, and drive innovation through creativity. However, literature and reports indicated that Nigerian higher education is not entrepreneurial nor at the forefront in generating financial growth for both the economy and industry through ground-breaking research and publications [70, 66, 59, 26]. More problematic and a concern is that, in 2017, 2018, and 2019, Nigeria ranked 131 of 140, 117 of 137, and 135 of 141 countries respectively on critical thinking in teaching and research skills, levels of research and development, and patents per capita [86, 93]; thereby maintaining rankings in the lower regions.

Consequently, previous studies conducted on balancing heavier teaching loads with research on both the person and product [42, 69, 72, 80] applied diverse methodologies and conclusions, hence the debate is inconclusive. Further, some studies focused on the relationship between factors such as, globalization, poor remuneration, educating masses vis-à-vis sizeable group, digitization of tertiary education and academics output [80, 82] with varied prescriptions. However, limited studies conducted in Nigeria applied more of qualitative technique and correlational statistical technique [5, 60, 61] to examine factors hindering academic output.

Therefore this paper investigated the effect and sensitivity relationship of flexible wellbeing elements on creative product in selected private universities in South-West Nigeria.

2. Literature Review

2.1. Creative Product

Conceptually, creativity has been approached from practical and mental application, to useful products development along the substratum of all research [19]. Nonetheless, scholars' arguments were pillared on decisive characteristics of creative products which may differ across fields [73, 72]. Moreover, novelty as a single construct is insufficient to describe creative products and a weak reflection of reality. Thus, creative product is defined as a new and useful by-product of individual or team efforts [40]. More broadly, creativity is associated with outcomes and things that resulted from creative process [29]. The definition's assumption is that outcomes such as publications, paintings, poems and designs are objects amenable to the scientific method. However, the concern arises where creativity is perceived merely as a physical product and does not recognize the process and press involved in achieving novelty [98]. Consequently, for this paper, the researchers defined creative product as outcomes/output such as publications, grants, patents, and recognition in the academic business market.

2.2. Flexible Wellbeing

The concept of wellbeing is multi-facet in nature as it involves the physical, mental or emotional strain or a condition when a person perceives demand to exceed personal and social resources [94]. Also, it constitutes an acceptable level of good physical health, emotional and mental wellness; encompassing the psychological; physical health; financial and social well-being [95] As such a single intervention might improve some aspects of wellbeing but not all [38, 22, 85]; hence the need for flexible wellbeing as, proper conceptualization of wellbeing could be vital for the design of policies and practices targeted at refining wellbeing. Therefore, scholars conceptualized flexible wellbeing as the wholeness of the individual with reference to how the person and environmental factors; psychological, social resources and wellness match the job demands [86, 26]. The aforementioned definition was adopted and declassified into workload, mental health, life satisfaction, physical, psychological and technological work environment as work-based-empowering elements of flexible wellbeing in this paper.

Accordingly workload refers to the quantity of work allocated or required to be carried out within a specific time or period. Workload can be classified into quantitative, such as the amount of work to be done or qualitative, such as the difficulty of the work, because different individuals in varied sectors perceive workload differently [88]. Consequently, excess workload could likely lead to stress which could either have a positive or negative effect on a worker. In a similar perspective, mental health is referred to as an individual's subjective feelings of well-being, optimism and mastery, resilience or the ability to deal with adversity, and the capacity to be able to form and maintain meaningful relationships [21]. However, scholars claimed that mental health problems may be associated with genetics, environmental stressors, psychological factors, amongst other factors [4, 76]. As such, workplace possesses significant impact on mental health because it constitutes a platform for different psychological experiences.

Life satisfaction connotes high socio-economic status, sound health, equitable financial resources, employment and certain personality characteristic like low neuroticism, highly extrovert and good mental health [50]. In addition, financial concerns also have a place in the concept of wellbeing; particularly in today's economic environment where workers report that they are distracted by day-to-day financial worries and concern at work [9]. More so, the physical working environment is referred to as a component of the workplace structure that can be sensed by human [53]. According to Health Service and Safety Association (2015), the physical working environment comprises aspect of the visible and tangible working place environment such as working condition of the employee, fresh indoor air, available technologies as well as the lay out and physical design of the entire workplace.

The psychological work environment is imperative to ensuring job satisfaction and wellbeing in the workplace [36]. It is claimed that a healthy psychological work environment denotes a balance between the demands made on the worker and the resources and skills the individual possesses to meet what is required [91]. This relates with the technological work environment which drives and sustains innovation, creativity and competitive advantage. Thus, wellbeing of workers is closely linked with the environment, and as such, technological facilities in the workplace create elements that enable workers perform their respective responsibilities and activities more efficiently [42]; as scholars opined that technological workplace could positively affect the social and economic aspects of human work performance and productivity [6, 58].

2.3. Flexible Wellbeing Elements and Creative Product

Previous works on flexible wellbeing elements also referred to as work-based-empowering elements and creative product have shown varied results. Academic works on creative product in higher institutions focused majorly on research and teaching parameters [2, 12], while others emphasized on income generated from research projects and consultancies [12, 66]. In addition, some who looked at academic indicators such as academic reputations, employability of graduates, faculty ratio, Nobel Prize and field's medals [2, 35] showed no epistemological difference. However, a reoccurring denominator indicated that resources in terms of facilities, infrastructure, remuneration and job satisfaction had affected academics' output more in developing counties. As such, Nigerian universities are not at the forefront of producing patents through exploring innovations and creative thinking to solve critical issues in the country [59].

Still, the decline in creative product in higher institutions could be traced to inadequate wellbeing measures [80, 85, 82] like workload pressures, work environment, and satisfaction which had negatively affected the wellbeing and output of academics. In the works of scholars, high levels of perceived stress due to workload and other contextual factors had impacted on research, teaching, and community service outputs. The discontent, workload and work environment have restricted the ability to utilize critical thinking, complex solution design and emotional responses to override hindrance to goal-directed behavior. In addition, changes and decline in levels of support for academics, increased demand on administrative activities, balancing heavier teaching loads with research, unending academic strikes could have affected both the person and the product [69, 60, 86].

The power of wellbeing to influence creative product is challenged by requirements to publish research, community service that satisfy external stakeholders, poor remuneration, educating masses as opposed to a sizeable group, and the digitization of tertiary education [5. 42, 80, 82]. Conversely, a study found that while support from colleagues and workload pressures were positively associated with total self-reported publications, and research resources; interestingly, workload pressures were positively associated with publications in top management journals [44]. Nevertheless, it was hypothesized that wellbeing, creativity, and higher education, could easily be mapped against academics' output [31].

In addition, previous studies found that technology advancement has effect on how humans live, work, think, communicate and create [16, 97]. Although it is argued that the direction of the effect is not technology in and of itself; rather, it is how to create and manage the impact and implementation of emerging developments [18]. Thus, the connection between technology and creativity is a key issue for twenty-first century education [67]; as studies have advanced that there has been much consideration of what teachers need to know to use technology effectively and creatively [52, 34]. This is because, despite the rhetoric about the importance of supporting creativity in education [73] scholars have noted that school systems still function in traditional ways [17].

More so, other scholars found that most lecturers did not use a variety of modern learning experiences to encourage creativity in academia thus having negative effect in producing quality research and service delivery [62, 37]. Other works found that work environment is poor in most Nigeria universities and there is the need to make vast changes in human behaviour [63, 60]. Results further showed that the use of instructional technologies to promote creativity was low, and the curriculum assessment in most universities tends to stifle creativity rather than promote it

[42]. Hence, teaching creatively and for creativity to bring solutions to national economic problems is less than expected [10].

2.4. Theoretical Framework

From the foregoing, the theoretical underpinning centered on person-environment (P-E) fit theory common in the works of scholars [41, 28, 32]. The strength of this theory is that it provides interactive perspective to interpret Interactionist model of creativity [92] and the componential creativity theory [8].

It proposes that creativity has complex interaction between the individual and the work situation at different levels of an organization provided flexible wellbeing drives the interactions. Thus, the PE-fit theory focuses explicitly on the match between individuals, the environment and operational resources as key determinants of wellbeing and creativity [47, 98]. It also assumed that the theory leads to individual's mental, psychological, physical, social and material wellbeing [25], positive outcomes, such as satisfaction, performance, creativity and overall wellbeing [68, 89].

3. Methodology

This aspect looks at the scientific architectural design of the work to justify its robustness, validity and generalization. It details the research design, the population, instrumentation, model specification and ethical obligations. The paper's research design was anchored on cross-sectional survey design. The compelling reason emerged from deepening understanding by collating primary data from specific population at a particular time on individual's beliefs, opinions, motivations, and behavioral patterns [99]. The research design bears resemblance with the study on flexible wellbeing and smart-head [86], and on impact of work environment on academic staff job performance [42].

The population of the study was 2,376 fulltime academic staff in eight selected private universities in Southwest Nigeria. The target population consisted of full-time academic staff in the rank of Senior Lecturer, Associate Professor and Professor, since this group of academics carry out research at a high level for national and international profile, ranking, patent, grant, and also serve as mentors [49, 87]. The choice of Southwest Nigeria was influenced by its geo-political location and has the highest number of private universities in Nigeria. That is, from the 79 private universities in Nigeria, 36 of them are in Southwest which means 46% of the total number of private universities in Nigeria is in Southwest Nigeria. More so, four (4) of the best private universities in Nigeria are in Southwest (National Universities Commission [NUC], 2019).

Private universities were selected because the problems inhibiting tertiary institutions creative product as a result of unconducive conditions at work are not only peculiar to public universities; since private universities operate within the same economic climate, and are an offshoot from the deeply weakened education industry. Also, private universities account for 48 percent of the total number of universities in Nigeria [70]. More so, private universities were set up to expand access to higher education, increase the quality of service and the productive capacity, and encourage both internal and external efficiency of the system [63]. Therefore, due to private universities rapid growth in Nigeria, it is paramount to ensure that predictors of academic staff creative product are given adequate attention.

Out of the 36 private universities, only private universities licensed between 1999 and 2009 (within the first 10 years of licensing private universities in Nigeria) were selected from each State to form the study area since these private universities have survived the formative phases of university establishment [7, 75]. Based on the period of university licensing adopted for this paper, 17 private universities were selected; while a proportion of the sub-population was selected from the 17 private universities. Thus, eight (8) private universities were selected based on the following criterion (a) year of establishment (accredited/licensed universities from 5 years and above - 1999 to 2011 by NUC, 2019), (b) ownership (partnership, individual and faith-based), (c) ranking on JAMB's 2017 statistics and (d) the six (6) States in South-West Nigeria (Lagos, Ogun, Ondo, Osun, Ekiti and Oyo States).

The private universities that met the minimum criteria earlier stated were Achievers University in Ondo State, Afe Babalola University in Ekiti State, Babcock University and Covenant University in Ogun State, Lead City University in Oyo State, Redeemer's University and Bowen University in Osun State, and Caleb University in Lagos State. These private universities were ranked 30th, 3rd, 2nd, 1st, 22nd, 21st, 4th, and 23rd respectively. These rankings were based on statistics, considering academic stability, popularity, affordability, available facilities and quality of academic staff in determining applicants' choice of preferred universities [23, 90]. Indicating that four (4) of the best private universities in Nigeria are in Southwest.

A sample size of six hundred and twenty-one (621) which included an additional 30% sample size to reduce the number of unreturned data to either reduce missing data and or take care of non-response occurrence [99], constituted the sample size determined by applying the formula for sample determination for a finite population [46].

The study adopted the multiple-stage stratified random

sampling technique. A well-structured questionnaire was the research instrument with items adopted and adapted to obtain data from participants on their opinion and perception on the phenomenon. Pilot test was conducted on the questionnaire along with validity and reliability test to ensure the instrument had the capacity to measure what it was intended to measure in the study and taking into consideration how well the concept was defined by the measure(s). Pilot test results of 0.7 and higher was achieved. Based on the fallout from the pilot study, the number of question items was reduced after applying factor analysis to eliminate question items that either reduced the suitability of the data (Kaiser-Meyer-Olkin [KMO]), and strength of the relationship among the variables (Bartlett test). Also, some question items were reconstructed without interference with the relevance of the question items needed for the study. Content and construct validity were established [33] to determine the validity of the instrument.

The construct validity was addressed through measuring the extent to which each measure adequately evaluated the construct it purported to assess and this was implemented by ensuring that observed relations with measures of other variables matched theoretical expectations about the association with other variables used in the study. Thus the following statistical validation scores were achieved: (Creative Product (α) = 0.86, Workload (α) = 0.79, Mental Health (α) = 0.78, Life Satisfaction (α) = 0.85, Physical Work Environment (α) = 0.97, Technological Work Environment (α) = 0.82, Psychological Work Environment (α) = 0.71) [8, 22, 71, 79].

The reliability result through Cronbach's alpha coefficients from the internal consistency revealed; Creative Product (α) = 0.84 and Flexible Wellbeing Elements ranged 0.72-0.87. The work used primary data that were sourced from the sampled private universities and analyzed by using multiple regression analysis to determine effect and Artificial Neural Networks (ANN) which belongs to the statistical learning algorithms group in analyzing the complex relationships in data by simulating to detect patterns in data through Statistical Package for Service Solutions SPSS 22.0. Therefore, the multiple regression equation was established based on the elements of flexible wellbeing. Hence the model was formulated with reference to the research objective:

$Y = f(X)^n$ that is:

$$Y = f(x_1, x_2, x_3, x_4, x_5, x_6)$$

$$Y = \alpha_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \mu_i \quad (1)$$

Where: Y = Creative Product (CPT)

X = Flexible Wellbeing Elements (FWBE)

Where:

x_1= Workload (WL)

x_2= Mental Health (MH)

x_3= Life Satisfaction (LS)

x_4= Technological Work Environment (TEHWE)

x_5= Physical Work Environment (PHWE)

x_6= Psychological Work Environment (PSYWE)

The functional relationship of the model is presented as:

$$\sum(WL + MH + LS + TEHWE + PHWE + PSYWE) = FWBE$$

Hence:

$$CPT = a_0 + \beta_1 WL_i + \beta_2 MH_i + \beta_3 LS_i + \beta_4 IEHWE_i + \beta_5 PHWE_i + \beta_6 PSYWE_i + \mu_i \quad (2)$$

Where:

β_0 = Constant term

β_1 = Coefficient of workload

β_2 = Coefficient of mental health

β_3 = Coefficient of life satisfaction

β_4= Coefficient of technological work environment

β_5= Coefficient of physical work environment

β_6 = Coefficient of psychological work environment

μ = Error term (Stochastic variable).

At 95% confidence interval, the hypothesis was tested using multiple regression and Artificial Neural Networks analysis. The study expects that a positive and significant effect will be observed between flexible wellbeing elements and creative product. The paper adherence to ethics of research was strictly followed regarding confidentiality, anonymity, respect for human dignity, and non-falsification of data, non-data manipulation was applied in the data collection and collation process. In addition, sources obtained from the studies of other scholars were duly acknowledged.

4. Results and Discussions

To investigate the hypothesis, multiple regression analysis and artificial neural network analysis were applied. Data from five hundred and thirty-two (532) respondents were collated and analyzed. The independent variable was flexible wellbeing elements (workload, mental health, life satisfaction, physical work environment, technological work environment, psychological work environment), while the dependent variable was creative product. According to the rule of thumb, for behavioural sciences *adjusted* R^2 values equal to or greater than 0.10 were deemed adequate for

explanatory power; as such, *adjusted* R^2 values for endogenous variables were reassessed as follows: 0.26 (substantial), 0.13 (moderate), 0.02 (weak) [51, 54]. The results of the descriptive statistics and multiple regression analysis are presented in Tables 1 and 2.

Table 1. Descriptive Statistics.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Workload	532	1.40	6.00	4.8392	0.56069
Mental health	532	2.40	6.00	4.5324	0.69924
Life satisfaction	532	2.40	6.00	4.7820	0.59272
Physical work environment	532	1.80	6.00	4.5982	0.68263
Technological work environment	532	1.60	6.00	4.5286	0.76779
Psychological work environment	532	1.29	6.00	4.0819	0.75877
Creative product	532	2.14	6.00	4.6050	0.64194
Valid N (listwise)	532				

Source: Field Survey, 2020

Table 1 presented the descriptive statistics (mean, maximum, minimum, standard deviation) of participants responses to flexible wellbeing elements and creative product. The mean scores (*M*) based on participants answers to a Six-point Likert Type scale were interpreted as follows: between 1.00 and 1.49 as very low extent; 1.50 and 2.49 as low extent; 2.50 and 3.49 as partially low extent; 3.50 and 4.49 as partially high extent, and 4.50 and 5.49 as high extent; while between 5.50 and 6.00 as very high extent. Thus, based on the mean scores, respondents are of the position that to a high extent the physical and technological work environment are stimulated, while addressing workload, mental health, and life satisfaction of academic staff in their institutions. Though respondent's feelings at work on the psychological work environment features was partially high to an extent. More so, to a high extent creative product is achieved.

The analysis was facilitated using SPSS 22th Edition

Table 2. Summary of Multiple Regression Analysis Result for Flexible Wellbeing Elements and Creative Product in selected Private Universities in South-West Nigeria.

Model	B	Sig.	T	ANOVA (Sig.)	R	R^2	Adjusted R^2	F (df)
(Constant)	1.538	0.000	6.359					
Workload	0.178	0.000	3.577					
Mental health	0.086	0.030	2.179					
Life satisfaction	0.006	0.898	0.128	0.000[b]	0.567	0.322	0.314	41.561 (6,525)
Physical work environment	0.149	0.001	3.403					
Technological work environment	0.290	0.000	7.446					
Psychological work environment	-0.051	0.129	-1.520					
Predictors: (Constant), Psychological Work Environment, Life Satisfaction, Mental Health, Workload, Technological Work Environment, Physical Work Environment								
Dependent Variable: Creative Product								

Source: Field Survey, 2020

Table 2 presented the summary of multiple regression analysis result for flexible wellbeing elements and creative product at significance value of $p < 0.05$. *(see appendix 1 for comprehensive Tables of multiple regression results).*

The analysis was facilitated using SPSS 22th Edition

4.1. Interpretation

The analysis in Table 2 revealed the result of the multiple regression analysis conducted to investigate the effect of flexible wellbeing elements on creative product in selected private universities in South-West Nigeria. Overall, the results of the analysis revealed that flexible wellbeing elements had positive significant effect on creative product (*adjusted* R^2 = 0.314 (F (6, 525) = 41.561, p=0.000). In addition, the results for individual effect revealed that workload (β = 0.178, t = 3.580, p = .000), mental health (β = 0.086, t = 2.178, p = 0.030), physical work environment (β = 0.149, t = 3.403, p = 0.001), and technological work environment (β = 0.290, t = 7.446, p = 0.000) had positive and statistically significant effect on creative product. Also, results showed that technological work environment was the best individual predictor. The analysis revealed further that life satisfaction (β = 0.006, t = 0.127, p = 0.899) had positive but insignificant effect on creative product, while psychological work environment (β = -0.051, t = -1.520, p = 0.129) had negative and insignificant effect on creative product in selected private universities in South-West Nigeria. The result indicated that out of all the six elements of flexible wellbeing adopted in this study, only workload,

mental health, physical work environment and technological work environment had positive and significant effect on creative product in selected private universities in South-West Nigeria. In addition, technological work environment was the best predictor element.

The multiple regression aggregated results in Table 2 further revealed that, the relationship between flexible wellbeing elements and creative product in selected private universities in South-West Nigeria was moderately strong, and positive (R = 0.567). More so, the goodness of fit model presented in Table 2 showed that with *Adjusted* R^2= 0.314, indicated that flexible wellbeing elements explained 31.4% of the changes in creative product in selected private universities, while the remaining 68.6% could be attributed to other factors not included in this model. Also, the F-statistics (df = 6, 525) = 41.561at p = 0.000 (p<0.05) indicated that the overall model was robust and significant in predicting the effect of flexible wellbeing elements on creative product. This means that flexible wellbeing elements had positive significant effect on creative product in selected private universities in South-West Nigeria. The previously stated multiple regression model was re-expressed as thus:

$$CPT = 1.538 + 0.178WL + 0.086MH + 0.149PHWE + 0.290TEHWE$$

Where:

CPT = Creative Product

WL=Workload

MH= Mental Health

PHWE= Physical Work Environment

TEHWE= Technological Work Environment

The regression model equation showed that β_0 was 1.538 when X = 0. The value 1.538 implied that statistically holding flexible wellbeing elements to a constant zero, creative product would be 1.538 implying that without flexible wellbeing elements, creative product in the selected private universities in South-West Nigeria would be 1.538 which is an indication of improvement. The analysis also showed the coefficient (parameter estimate) results indicated that when workload, mental health, physical work environment, and technological work environment are improved by one unit; creative product would increase by 0.178 0.086, 0.107, 0.149, and 0.290 units respectively (that is, statistically, creative product rate would increase by 17.8%, 8.6%, 14.9%, and 29% respectively with technological work environment resulting in the highest rate of increase to creative product). This implies that an increase in workload, mental health, physical work environment and technological work environment would lead to an increase in creative product in selected private universities in South-West Nigeria. The result of the analysis indicates that private universities should concentrate on workload, mental health, physical work environment and technological work environment to improve creative product.

4.2. Flexible Wellbeing Elements in Neural Network Structure (Architecture)

The following model summary table displays information about the results of the artificial neural network based on importance of independent variable.

Importance of Independent Variables:

Table 3 and Figure 1 contained an analysis computing the importance and the normalized importance of the individual predictor in determining the neural network. The analysis is based on the training and testing samples which included 362 (68.0%) cases assigned to the training sample and 170 (32.0%) with no values excluded. The independent variable importance measured how much the network's model-predicted value changes for different values of the independent variable. While, the normalized importance represented the importance values divided by the largest importance values and stated as percentages. Therefore from Table 3 and Figure 1, it is evident that "Technological Work Environment" contributed most in the neural network model construction, followed by "Physical Work Environment", "Psychological Work Environment", "Workload", "Mental Health", and "Life Satisfaction".

Table 3. Independent Variable Importance.

	Importance	Normalized Importance
Workload	0.106	33.8%
Mental Health	0.085	27.1%
Life Satisfaction	0.066	21.2%
Physical Work Environment	0.271	86.7%
Technological Work Environment	0.313	100.0%
Psychological Work Environment	0.159	51.0%

Source: SPSS Output Independent Variable Importance

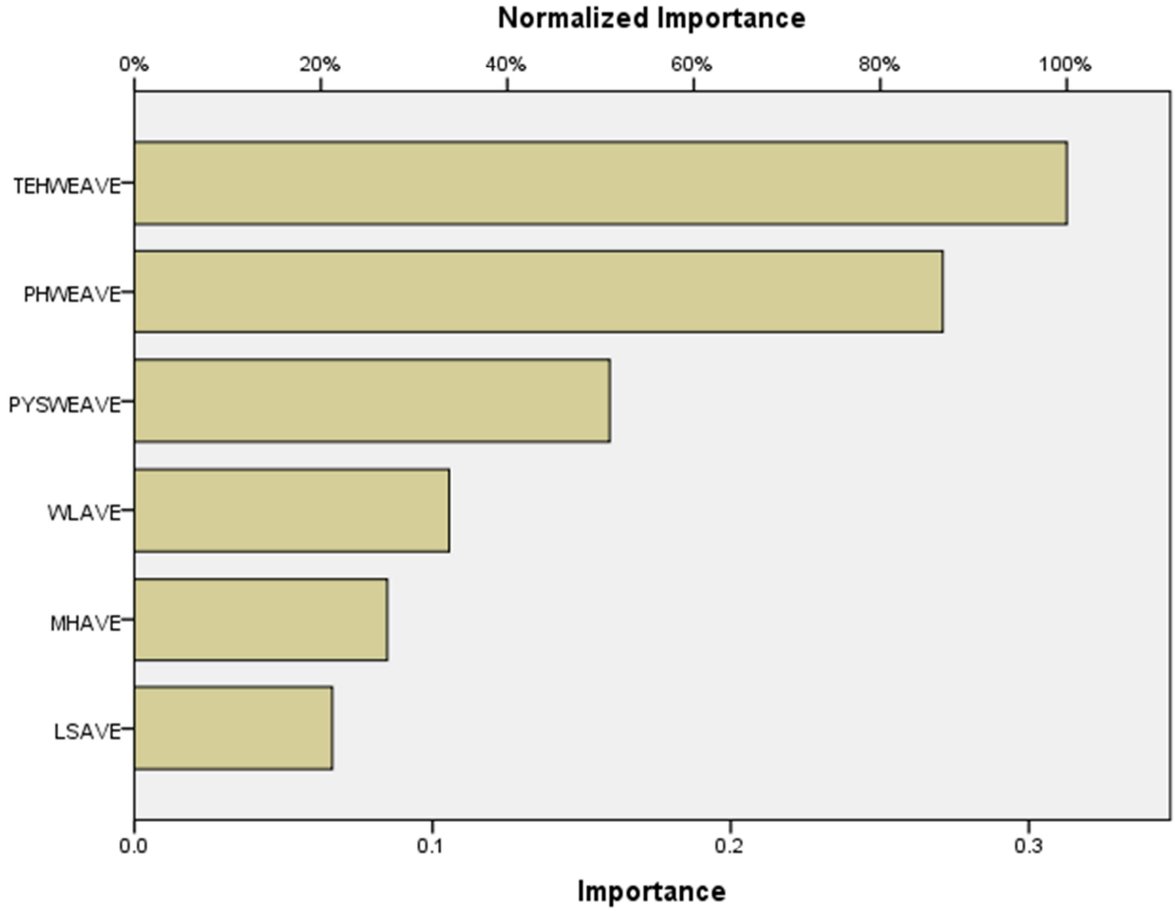

Figure 1. Importance ranking of studied predictor elements influence on creative product.

The independent variables importance as shown in Figure 1 revealed that technological work environment had the highest importance (0.313) on creative product. This was followed by physical work environment (0.271), psychological work environment (0.159), workload (0.106), and mental health (0.085), importance respectively, while life satisfaction (0.066) had the least importance on creative product in the study's geographical location.

The data imputed into the algorithm and the results achieved in comparison with that of the multiple regression analysis traditional method showed some degree of similarity but differ in the area of life satisfaction and psychological work environment. Nevertheless, the observation does not negate other findings or suggest double porousness; rather it exhibited lower level of importance among the tested parameters. Thus, the use of the different statistical tools broadens empirical insight and extended the range of methodological analysis applied by previous works on wellbeing and creative product. Accordingly, the study expectations that a positive and significant effect and sensitivity relationship will be observed between flexible wellbeing elements and creative product is maintained.

4.3. Discussion of Findings

The aggregated result of the hypothesis answered the question on whether flexible wellbeing elements have effect on creative product. The study findings revealed that, flexible wellbeing elements had positive significant effect on creative product in selected private universities in Southwest Nigeria. This paper's findings are in consonance with a previous study result that an association existed between wellbeing and creativity output from academics [31]. Similarly, reports linked wellbeing/work-based-empowering elements and how people are managed, to product quality, profitability and creativity [65, 56, 81, 93]. More so, to develop and sustain successful products, the development of an environment where academics are safe to explore, create, and offer ideas cannot be overstated [43].

Empirically, substantiating previous findings with the aggregated significant result in this study, scholars had found that studies carried out on the creative product in higher institutions had quite a number focusing on research and teaching indicators [2, 12, 93]. Other works emphasized income generated from research projects and consultancies

[12]; while additional studies focused on academic indicators such as academic reputations, employability of productive capacity of labour force, faculty ratio, Nobel prize and fields medals [2, 35, 93]. Interestingly, the recurring result in these studies showed that operational resources in terms of facilities, infrastructure, remuneration and amount of workload referred to as wellbeing/work-based-empowering elements had significant effect on academics' output. In the same vein, research resources and workload pressures were positively associated with publications in top management journals for patents [44].

Likewise, scholars hypothesized that flexible wellbeing had a positive significant effect on creativity output and other multi-componential aspects of creativity, job effectiveness and academics output [48, 82, 85, 88]. It was also found that factors such as salaries, nature of work, amount of work, and the work environment influenced the output of workers [22]. Other studies confirmed that operational resources and the work environment affected university goal attainment [3, 43]. Consequently, this paper's results in tandem with previous empirical results has shown that there is an interaction between flexible wellbeing and creativity in terms of product, patent, and novelty [12, 35, 66, 81, 26, 86]. Correspondingly, while most conclusions on flexible wellbeing are based on the results in Western countries with limited results in developing countries [38]; these study findings, despite the sector, agreed that the combined flexible wellbeing elements affected creative output. Be that as it may, it is maintained that the Universalist perspective of individual wellbeing elements may not be tenable since the elements of wellbeing may vary and have different meanings for people across different countries and sectors [38].

Thus, the results of the individual multiple regression analysis for this paper aligned with Jovanović and Joshanloo [38] submission; as findings showed that only workload, mental health, physical and technological work environment had positive and significant effect on creative product with technological work environment as the best individual wellbeing element. These individual results are in consonance with previous works that workload has significant effect on academics' creative outcomes [15]. However, higher levels of workload and other contextual factors impacted academics research, teaching, and community service outputs by restricting the ability of the individual to utilise executive functioning skills such as, critical thinking strategies for complex action and overrides emotional responses from engaging in goal-directed behaviour [69].

In line with this submission, since workload pressures have increased on academics, it has negatively affected their wellbeing and work quality [82]. Also, the fact that mental health had significant effect on creative product in this paper strengthens the position that although, the teaching industry is one of the biggest throughout the whole world, it is highly susceptible to physical and mental health problems and mental health has received little attention of [14]. Likewise, journalists, research policy observers and academics have voiced concerns about the potential influence of mental health on research output in universities [11, 78, 83]. These concerns are often related to increased workloads, intensification and the pace of change [96].

Further, in light of the fact that technological work environment was positive and significant on creative product and was the best individual wellbeing element strengthened the position that, technology advancement has effect on how humans live, work, think, communicate and create [97]. The results also supported other studies that technological work environment had significant effect on creative product [63, 30]. Scholars posited that technology is adding value, and changing work and organizations although, it is argued that the direction of the effect is not technology in and of itself; rather, it is how to create and manage the impact and implementation of emerging developments [16, 18]. Indeed, it is often debated that the connection between technology and creativity is a key issue for twenty-first century education [67].

Studies have advanced that given the digital world in which education is increasingly situated, there has been much consideration of what teachers need to know to use technology effectively and creatively [52, 34]. This is because, despite the rhetoric about the importance of supporting creativity in education [73], scholars have noted that school systems still function in traditional ways [17]. Likewise, earlier scholars had found that most lecturers did not use a variety of modern learning experiences to encourage creativity in academia thus resulting in a negative effect on quality research and service delivery [62, 37]. Be that as it may, other findings revealed that physical work environment had significant effect on creative product [20, 36]. Therefore, beyond correlation, work environment has a significant effect on job output of academics [42, 67].

Further discussion on this paper's individual results revealed that life satisfaction and psychological work environment had positive and negative effect respectively on creative product but were insignificant. The positive effect on creative product by life satisfaction had been hypothesized by scholars to affect university goal attainment [22, 38, 48], work outcomes and creativity [85, 88]. These findings supported previous commentaries that workload, mental health and life satisfaction are constructs linked with both the physical and technological work environment [27, 22, 3, 39, 85]. As such whatever affects workload, mental health and other

operational resources in the work environment is related with life satisfaction and subsequently affects creative product either positively or negatively.

On the other hand, the negative effect of psychological work environment could connote inverse effect on creative product, as previous works had indicated that wellbeing in terms of psychological work environment had shown a significant relationship with work content [57], workers' productivity and creativity [72]. However, job demands and job resources could affect workers differently as highlighted earlier [13]. This is expected, because due to individual characteristics, people respond and adjust to resources and demands in varied ways.

More so, this paper's result corroborated previous findings that decline in wellbeing/work-based-empowering elements and unconducive conditions in the education environment could stimulate excess workload, mental health issues, and negatively affect individuals' life satisfaction, leading to staff frustration, poor decision making, procrastination, emotional exhaustion, cynicism, and lack of personal accomplishment [27, 88]. Nevertheless, the statistically insignificant effects of life satisfaction and psychological work environment do not mean these elements of wellbeing are not relevant, but correlates with the Person Environment-Fit theory as supported by other scholars that the fit between personal and contextual factors or the environment is important in influencing the occurrence of creative performance [32, 89].

Hence an organisation that integrates a work environment that promotes flexible wellbeing/work-based-empowering elements, and provides operational resources, influences creative outcomes from workers. Therefore, the insignificant results for life satisfaction and psychological work environment should be a matter of concern for management in private universities. The implication is that, in as much as the result of the analysis indicated that private universities should concentrate on workload, mental health, physical and technological work environment to improve creative product; wellbeing elements such as life satisfaction and psychological work environment should be given equal if not more attention. This is so since, when workers are happier as a result of the quality of life at work, they tend to be more open-minded, original in their thinking and knowledge-based culture.

5. Conclusion and Recommendations

This paper's multiple regression analysis established that, flexible wellbeing elements had a positive significant effect on creative product in selected private universities in South-West Nigeria. Nevertheless, from the six elements of flexible wellbeing, only workload, mental health, physical and technological work environment had positive and significant effect with technological work environment as the best individual predictor to stimulate creative product. This supported the artificial neural network analysis which showed technological work environment as the best individual predictor. In summary, based on previous reports, the researchers submitted that a significant percentage of workers in Nigeria do not enjoy the desirable level of wellbeing that may allow for ingenuity in attracting and producing patents through research and development; as the extent of wellbeing experienced by workers is abysmal compared with the amount of creative output demanded. Thus, the findings in this paper which revealed that refinement, redefining, and fine-tuning the wellbeing/work-based-empowering elements of workers to match and drive creativity as a panacea for the stimulation of intellectual novelty in research, publication, grants, patents, and knowledge-based novel culture cannot be overstated.

In conclusion, the study findings aligned with the person-environment fit theory that when there is an interaction, integration, association and or fit between the characteristics of people/workers, the work environment, wellbeing, and contextual factors, positive outcomes for individuals such as, performance, and creativity will be enhanced. Hence, the individual, the work environment, and resources provided boost wellbeing/work-based-empowering elements and results in creative outcomes in the organisation. Therefore, flexible wellbeing strategies that continuously fit and respond to the fluctuating academic business environment would enhance academics wellbeing, and work output. However, inadequate and or static wellbeing measures would impair the needed strengths to impart, drive, and create knowledge-based novel culture in academic staff members/workers.

The paper recommended that institutionalized policies put in place should ensure academics resource pool are continuously redefined and fine-turned to match with the creativity drive expected for novel research, patents, and grants. Consequently, the contribution to practice is that administrative policies regulating academic staff members' wellbeing/work-based-empowering measures should be progressively refined to support academic staff creativity to boost originality in research output, patents, and higher rankings. Future studies should be extended to other industries in different countries.

Appendix

Appendix I: Comprehensive Multiple Regression Analysis Result for Flexible Wellbeing Elements and Creative Product in selected Private Universities in South-West Nigeria

Table 4. Model Summary.

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.567[a]	.322	.314	.53158

a. Predictors: (Constant), PYSCHOLOGICAL WORK ENVIRONMENT, LIFE SATISFACTION, MENTAL HEALTH, WORKLOAD, TECHNOLOGICAL WORK ENVIRONMENT, PHYSICAL WORK ENVIRONMENT

Table 5. ANOVA.

ANOVA[a]						
Model		**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**
1	Regression	70.464	6	11.744	41.561	.000[b]
	Residual	148.352	525	.283		
	Total	218.816	531			

a. Dependent Variable: CREATIVE PRODUCT
b. Predictors: (Constant), PYSCHOLOGICAL WORK ENVIRONMENT, LIFE SATISFACTION, MENTAL HEALTH, WORKLOAD, TECHNOLOGICAL WORK ENVIRONMENT, PHYSICAL WORK ENVIRONMENT

Table 6. Coefficient.

Coefficients[a]						
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	1.538	.242		6.359	.000
	WORKLOAD	.178	.050	.155	3.577	.000
	MENTAL HEALTH	.086	.039	.093	2.179	.030
	LIFE SATISFACTION	.006	.048	.006	.128	.898
	PHYSICAL WORK ENVIRONMENT	.149	.044	.159	3.403	.001
	TECHNOLOGICAL WORK ENVIRONMENT	.290	.039	.346	7.446	.000
	PYSCHOLOGICAL WORK ENVIRONMENT	-.051	.034	-.060	-1.520	.129

a. Dependent Variable: CREATIVE PRODUCT

Appendix II. Flexible Wellbeing Elements in Neural Network Structure (Architecture)

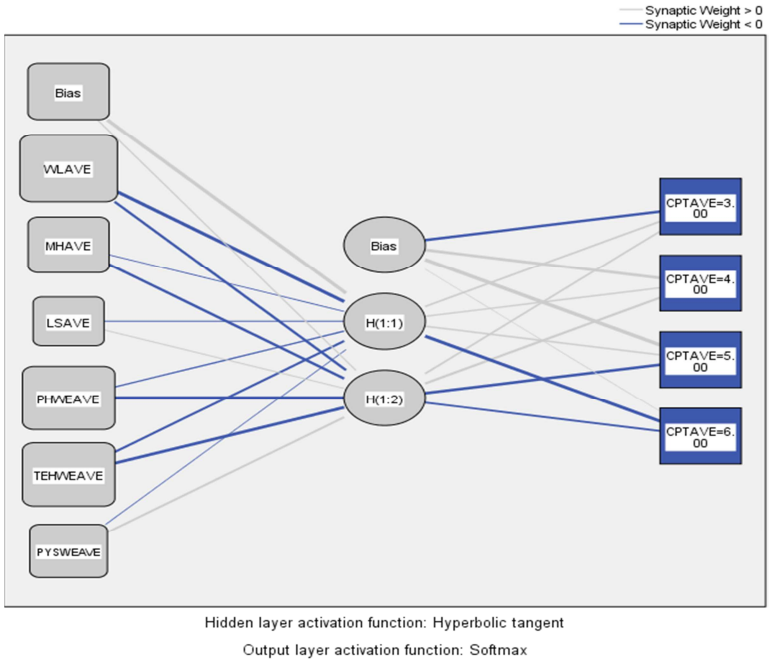

Figure 2. Hidden layer activation function.

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