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Abstract

There has been a discussion on the quality of student development in the Nigerian university system as one of the roles of university education, is a manpower development. However, there has been a decline in the quality of graduates produced. This study was carried out to determine the impact of quality academic process on student development. The study adopted a survey research method where an instrument titled quality academic process questionnaire (QAPQ) and student development questionnaire (SDQ) were administered on faculty members in public universities in Nigeria. Out of 450 questionnaires that were given out, only 305 were returned and usable for data analysis after the data cleaning. The findings of the study revealed that university curriculum, instruction, assessment, research and development significantly determined the quality of student development while service learning was found not to be significantly related to student development. Therefore, some practical and theoretical implications were made and future research directions were suggested.

Keywords*:* student development, quality academic process, PLS-SEM, hierarchical model, process management, Nigerian university education

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1. Introduction

The ultimate goal of any investment is customers' satisfaction. As such, the issues of quality processes and output have been on the priority list of many universities in the world including Nigeria (Kayode, Yusoff & Veloo, 2016). In this era of globalization, there has been a call from the society most especially the stakeholders that the university should be accountable with the quality of graduates produced in the university system (Kayode, Yusoff & Veloo, 2014; Sofoluwe, Oduwaiye, Ogundele & Kayode, 2015). As pointed out by previous studies (Sahney, 2011; Magutu, Mbeche, Nyaoga, Nyamwange, Onger & Ogoro, 2010), the opinions of the customers and end-users of a product is essential, the perceptions of institution rendering such services in the process-side are very paramount.

Quality is the goal of any organization whether it is business or educational. As with any new strive, change is the greatest obstacle to overcome. As asserted by Hernandez and Leslie (2001), change brings about feelings of dissension, whether in business or a school setting. Despite the argument that quality implementation stresses the allocation of power to employees; the actual application phase involves a greater deal of control on employees. Since 1945, the emphasis on research has swung from an exploration for behavioural peculiarity towards a quest for actions or activities that brings about improvement in the subordinates' satisfaction and accomplishment (Bowers & Seashore, 2011). Therefore, universities and their academic leaders are confronted with the obligation of providing learners with the contemporary mastery competency expected from them after their graduation from the university system (Trilling & Fadel, 2009).

An analysis of employer surveys and labour statistics in Nigeria by Dabalen, Oni, and Adekola (2001) shows that the rate of unemployment of university graduates in Nigeria is 22 percent and this has reduced to 9.9% at the end of 2015. Moreover, the study according to Dabalen et al. (2001) reveals that Nigerian university graduates are not properly trained, and this makes them to be unproductive in their job.

Besides, graduate skills are gradually deteriorating since the last 10 years and, low competency most especially in written, as well as oral communication are the prevailing situations. Inadequate practical and technological competencies of our graduates constitute a huge knowledge gap. This was reported by NUC (2004) in their study on the evaluation of the expectations of university graduates by the employers of labour. The results of that study showed that many unemployed graduates are roaming in the streets and more embarrassingly, those who were fortunate enough to get employment had to go through remedial training with the intention of bridging the huge knowledge and skills gap left from university education.

However, the role of University education in stimulating the national economic growth and transformation exacerbates the need to ensure quality within the Universities system (Ebuara, 2012; Kim,2009; Ololube, Amaele, Kpolovie, Onyekwere, & Elechi, 2012). Therefore, the quality assurance procedures should be meticulous, transparent and the resourcefulness of excellence improvement should be steadfastly embedded in any quality management program (Beattie, 2009; Becket & Brookes, 2008).

According to Grewal (2012), excellent results in terms of outcomes with stakeholders, employee and society contentment are realized via leadership dynamic tactics and policy, staff collaborations and resourcefulness as well as qualitative processes. This was further buttressed by Argia and Ismail (2013), that low level of performance experienced in our institutions is the inability of the leader to provide faculty specialist, effective institutional infrastructure and essential facilities to carry out excellent programs and academic undertakings.

2. Literature Review

2.1. Concept of Quality Academic Process

Quality academic processes are all school-based classrooms and outside classrooms training that enhance students' knowledge and understanding. Psomas, Fotopoulos, and Kafetzopoulos (2011) examined the level of process management in certified companies.

Using exploratory factor analysis, two factors were extracted from process management construct which they termed: core process management and the supporting quality tools. The core process management is term in this study quality academic process which encompasses all activities related to classroom instructions and field practices which are curriculum, instruction, assessment, research and service learning.

This study is built on the dimensions of process management as suggested by Calvo-Mora et al. (2006) which are administrative processes, educational process and research process. The findings of their study reveal that the research process is negatively insignificant in process management in higher education. Therefore, this study identifies education and research process in their study as the dimension for quality academic process. This is consistent with the lean higher education (modified 11 June 2015) dimension of quality academic process in higher education which according to them includes course design, teaching, improving degree program, student feedback and handling of assignment (Emiliani, 2005). Therefore, quality academic processes in this study are examined viz-a-viz curriculum, instruction, service learning, assessment and research.

2.2. Concept of Student Development

A customer can be regarded as anyone a service or product is being offered to and in the university system, we have internal and external customer. However, the needs of various customers are diverse, and the universities are expected to observe the common needs of the various stakeholders as their major focus. According to Sahney, Banwet, and Karunes (2004), the diverse roles of the students in university education can be examined in four dimensions: they are the product in process, the workforce of the learning process, external customers and internal customer in the process of course material delivery.

As argued by Nightingale and O'Neil (1994), quality learning by the student can be illustrated in terms of student's ability to discover knowledge by him/herself; long-term preservation of the knowledge by the student (Gibbs, 1992); ability

to observe the correlation between old and new knowledge; capability to generate new knowledge; student competency to employ his/her new knowledge for problem solving; ability to converse one's understanding or experience to others; willingness to grow into lifelong learners (Duke, 1992).

According to Preszler (2011), who examined the effectiveness of the university in terms of the goals in which they intend to achieve and the learning outcomes of the students; the attributes of university effectiveness are drawn from the vital graduate attributes which include research and analysis, ethical behaviors, personal and scholarly independence, information literacy, social and specialized understanding, and oral and written communication skills and what they know and do after their studies in the university system (Funk & Klomparens, 2006; Gaudet, Annulis, & Kmiec, 2008; Monk, Foote, & Schlemper, 2012).

Despite the fact that series of student learning outcomes' models exist, some outcomes which include critical thinking, analytical as well as the ability to communicate which are believed as a necessity for every graduate of the university system, and numerous outcome of student learning are tailored to incorporate those important learning results as a part of the university program. According to Kuh (2008, 2013), the essential student learning outcomes at all educational levels that should be realized are grouped into: practical and intellectual skills; knowledge of natural and physical world as well as human cultures; applied and integrative learning; social and personal responsibility.

Learners outcomes are classified by Astin (1991, 1997) and Astin, Vogelgesang, Ikeda, and Yee (2000), into cognitive and affective sphere. Lenning, Lee, and Micek (1977) framework consists of evidence about the comprehensive outcomes of university education. Terenzini (1997) in enhancing the work of Astin's assessment model on the IEO assessment model, elaborates twelve inclusive classifications of learners' outcomes which include oral and mathematical skills; content knowledge, higher-order cognitive and academic improvement; career preparation; academic success, workplace skills; success in transitions; mental

and emotional advancement; economic benefits; attitudes and values; quality of life as well as public development.

In 2002, the Australian government funded a project to expand the course experience questionnaire (CEQ) that was initially developed by Ramsden (1991) to measure broader dimensions of students experience (Griffin, Coates, Mcinnis, & James, 2003); the project led to the creation of more scale which includes the graduate qualities scale. Conceptually, the course experience questionnaire is designed as a substitute measure of the outcome of student learning.

According to Bourner, Heath, and Rospigliosi (2013), the main goals of university education that cut across all the western universities which are referred to as "tripartite-mission" of the university are: the higher education of student, the advancement of knowledge and services to those who are out in the four walls of university system. However, in order to accomplish this mission, the student-centre, subject-centre and service-centre must be incorporated into the operations of the university system. The subject-centre is to prepare the students to promote knowledge via research, application and dissemination of knowledge; the student-centre is to prepare students towards their own advancements; and the service-centre is to prepare the students with required disposition and capacity towards the advancement of the society. These can be evaluated via three indicators: knowledge, skills and attitudes.

2.3. The Relationship between Quality Process Management and Student Development

As argued by Rautopuro and Vaisanen (2001), it is indisputable that quality teaching enhances student learning as well as inspiring improvement in both the general competences and specialist knowledge demanded by the society and working life of this modern day. Moreover, if students perceived teaching as pertinent towards the achievement of their goals, they will always be contented and therefore motivated to study harder.

According to Stefani (2004), evaluation of learners' learning is very essential particularly in this varying world of university education because of the changing needs of the stakeholders' expectation of their graduates. Because of this, it becomes necessary for all the staffs to be involved in enhancing student learning especially the new recruited lecturers to allow them to comprehend the basic student evaluation principles which according to Stefani (1998) will assist them in their assessment process towards student learning.

In the study of Mehrotra (2004), practical proofs have shown that the quality tenet assists the schools to: reaffirm the purpose, functions and responsibilities of the institutions; work out inclusive leadership training for lecturers at every level; enhance schools as a "way of life."; design staff enhancement program that will deal with the staff opinion and confidence in the school; draw up all-embracing child-development initiatives that traverse all the categories of schools; employ research as well as professional support information to drive the institutional practice and policy.

Kayode, Yusoff and Veloo (2015) in their study on the relationship between curriculum and attributes of faculty of education graduates teaching in Kwara state secondary schools, reveal that the curriculum has a positive and significant relationship with graduate attribute which suggests student development.

In a study carried out by Abd Rahman, Imm Ng, Sambsivan and Wong (2013), employees training for managerial skills and process assist to enhance the effectiveness of the establishment as well as knowledge attainment, knowledge protection and knowledge application which interact with the training and expertise of employees managerial process to increase the effectiveness of the organization.

According to Hitt, Haynes, and Serpa (2010), due to the recent global competitive environment, there is a need for the organizations as well as the universities to be ground breaking and innovative in their activities. This indicates that the universities in Nigeria and globally should be up and doing to discover existing

opportunities in order to produce graduates and services that will meet the taste of its external community (Alvarez & Barney, 2007). In order to achieve this, various university leaders are expected to acquire and sustain a culture that will promote and enhance innovation as well as contributing towards the improvement of teaching and learning (Pellet, 2008)

Criterion evaluation with other form of continuous assessment can be regarded as formative assessments when they offer speedy response to lecturers and are employed to assist individual student or clusters of students in their study. Nevertheless, formative assessment is not restricted to tests.
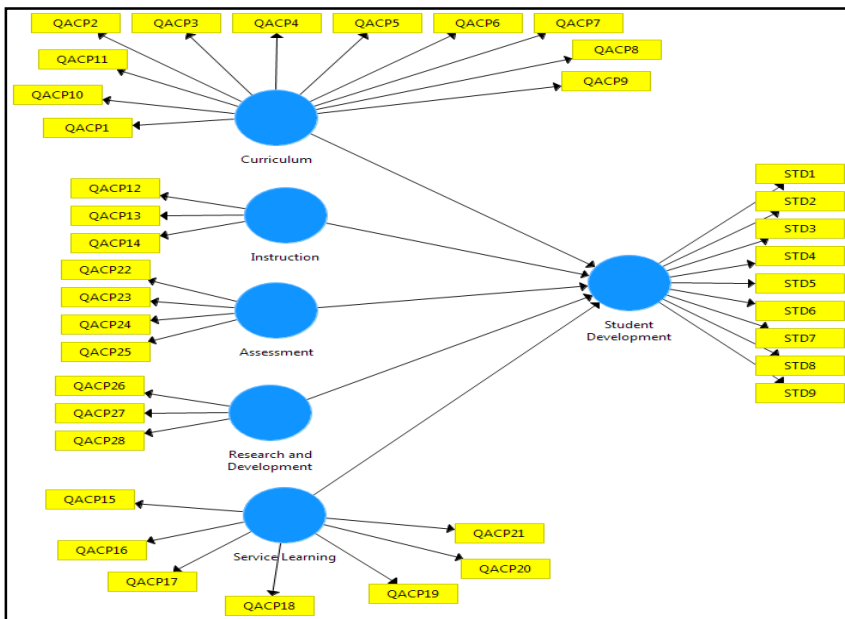
Figure 1: Research Model

According to Boston (2002), formative assessment techniques employed by instructors to create an approachable transformation of teaching and learning through the conventional ways which are: lecturers' observation, home work as well as classroom discussion. Never the less, easily using these routine may be insufficient; therefore, information gathered from such exercise should be utilized by the lecturers timely enough in the

process of making decision which according to Stiggins and Chappuis (2008) enhance student learning. Therefore, assessment has been regarded as the cornerstone of institutional effectiveness and it is the ground work for the improvement of the curriculum and school accountability (Preszler, 2011).

3. Methodology

3.1. Sample and Data Collection

This study adopted a quantitative research design. The population for this study comprised 37, 504 lecturers in all the lecturers in 79 public universities in Nigeria. As stressed by Hair, Black, Babin, and Anderson (2010), the minimum required sample size for a study depends on the complexity and the features of the measurement model. The required minimum sample size for this study using the rule of thumb by Hair, Hult, Ringle and Sarstedt (2014) is 110.

The construct with the highest indicators has 11 indicators multiplied by ten which is equal to 110. However, 450 participants were considered as the sample size for this study. A multistage sampling technique (Cohen et al., 2011) was used to select participants for this study. The population was first stratified into federal and state-owned universities. These universities were then grouped according to the geo-political zone in the country and the universities were listed according to their year of establishment.

The first university in every group was selected as they have been established for a longer period and they have produce many graduates. In all, ten universities were selected which comprise 90 faculties. The sample size of 450 respondents was divided by 90 faculties/colleges; a systematic random sampling technique was used to choose five academic staffs in all the faculties in the sampled universities.

3.2. Measures

A structured questionnaire was used to collect data for this study. The measures for the independent variables (assessment, curriculum, instruction, research and development as well as

service learning) were adopted from quality academic scale developed by Kayode, Yusoff and Vello (2016) while the student development scale was adopted from FRN (2004) in the National Policy on Education.

3.3. Data Analysis

The data gathered from the respondents were screened using Statistical Packages for Social Science (SPSS) version 22. The assessment for outliers, multicollinearity; non-response biased and common method variance   test was carried out. 41 cases of outliers were detected, which after confirming it to be influential outliers were deleted. Multicollinearity and non- response biased was not a problem in this study. The valid 305 responses were then analyzed using structural equation modeling - partial least square (SEM-PLS). The measurement and structural models were then assessed.

4.   Results and Discussion

4.1. Assessment of the Measurement Model

The measurement model was assessed in this study by examining the convergent validity, discriminant validity and the reliability (individual item and composite reliability) of the instruments used in this study. The indicator reliability was assessed through the loadings of the measures of each construct. According to Hair et al. (2011), any reflective indicators greater than 0.7 meet the threshold of item reliability and all indicators' loading in this study are greater than 0.7. Therefore, individual item reliability is achieved as shown in Table 2.

Table 2: Convergent Validity of Measurement Model

Construct	Items	Loadings	AVE[a]	CR[b]
Curriculum	QACP1	0.820	0.691	0.961
	QACP2	0.847		
	QACP3	0.883		
	QACP4	0.857		
	QACP5	0.801		
	QACP6	0.758		
	QACP7	0.861		
	QACP8	0.817		
	QACP9	0.804		
	QACP10	0.844		
	QACP11	0.846		
Instruction	QACP12	0.786	0.581	0.806
	QACP13	0.778		
	QACP14	0.720		
Service Learning	QACP15	0.786	0.735	0.951
	QACP16	0.854		
	QACP17	0.854		
	QACP18	0.882		
	QACP19	0.903		
	QACP20	0.882		
	QACP21	0.835		
Assessment	QACP22	0.858	0.768	0.930
	QACP23	0.888		
	QACP24	0.876		
	QACP25	0.883		
Research and Development	QACP26	0.863	0.791	0.919
	QACP27	0.901		

Construct	Items	Loadings	AVE[a]	CR[b]
Student Development	QACP28	0.902	0.703	0.955
	STD1	0.826		
	STD2	0.799		
	STD3	0.803		
	STD4	0.855		
	STD5	0.818		
	STD6	0.841		
	STD7	0.873		
	STD8	0.841		
	STD9	0.886		

Table 3: Discriminant Validity of Measurement Model

Construct	1	2	3	4	5	6
1. Assessment	**0.876**					
2. Curriculum	0.681	**0.831**				
3. Instruction	0.678	0.676	**0.762**			
4. Research and Development	0.720	0.650	0.658	**0.889**		
5. Service Learning	0.624	0.596	0.684	0.628	**0.857**	
6. Student Development	0.687	0.743	0.640	0.641	0.543	**0.838**

Diagonals (bold) represent the square root of the average variance extracted while the off diagonals are correlations among constructs.

4.2. Assessment of Structural Model

In order to assess the structural model, the R values, beta value and the corresponding t-values as suggested by Hair et al. (2014) were conducted. In addition, the effect size (f^2) and the predictive relevance (Q^2) were also reported. A bootstrapping procedure with 5000 resamples was applied to find the t-values. The result revealed that assessment (β= 0.234, p < 0.001), curriculum (β= 0.434, p < 0.001), instruction (β= 0.123, p < 0.05), research and development (β= 0.124, p < 0.05) are positive and significantly related to student development. While, service learning are not significantly related to student development (β= -0.024, p > 0.5). Therefore, H1, H2, H3 and H4 are supported while the result does not support H5. Also, the R^2 value is 0.623 which is greater than the substantial value of 0.35 (Cohen, 1988). This suggested that assessment, curriculum, instruction, service learning as well as research and development explain 62.3 % variance in student development.
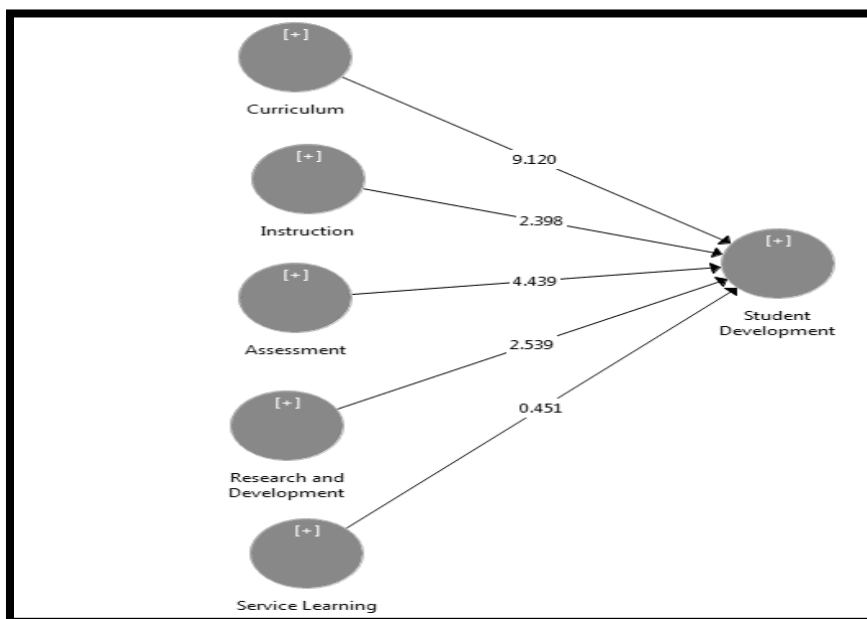

Figure 2: Structural Model (t-value)

Table 4: Hypothesis testing (Results of the Structural Model Analysis)

Hypothesis	Relationship	Beta	t-value	P-values	Decision	R^2	f^2	Q^2
H1	Assessment -> Student Development	0.234	4.439	0.000	Supported		0.054	
H2	Curriculum -> Student Development	0.434	9.120	0.000	Supported		0.216	
H3	Instruction -> Student Development	0.123	2.398	0.017	Supported	0.623	0.015	0.437
H4	Research and Development -> Student Development	0.124	2.539	0.011	Supported		0.016	
H5	Service Learning -> Student Development	0.024	0.451	0.652	Not Supported		0.001	

The effect size (f^2) was also assessed as the p value will only reveal that there is effect, but the size of the effect will not reveal. Using the Cohen (1988) rule of thumb where the measure of effect size with 0.02, 0.15 and 0.35 are adjudging to have small, medium and large effect respectively. As shown in Table 4, curriculum has medium effect of student development, assessment, instruction and research and development has small effect which service learning has no effect on student development. Furthermore, blindfolding procedure was carried out to assess the predictive relevance (Q^2).

According to Hair et al. (2014), if the Q^2 is greater than 0, the model has a predictive relevance and a value of 0.02, 0.15 and 0.35 suggest that the exogenous construct has a small, medium and large predictive relevance. The Q^2 value for this study is 0.437 indicating that the exogenous construct (assessment, curriculum, instruction, research and development as well as service learning in the model for this study has a sufficient predictive relevance.

4.3. Importance Performance Matrix Analysis (IPMA)

A post-hoc IPMA was ran as an extension to the result earlier obtained. The student development was used as the target construct (outcome variable). The IPMA builds on the partial least square estimates of the importance of each latent variable (derived from the total effects of the estimated relationship) by additionally including the latent variable average value (performance).

Table 5: Index Values and Total Effects

Latent Variable	Index Values (Performances)	Total effect of the Latent Variable on Student Development (Importance)
Assessment	60.523	0.211
Curriculum	63.263	0.394
Instruction	54.347	0.122
Research and Development	60.104	0.111
Service Learning	57.266	-0.023

As shown in Table 5, the index values (performance) and the total effects scores were computed which was plotted in Figure 3. It is evidence that curriculum and assessment are very important factors in determining student development due to their relatively high value when compared with other constructs. Even though, the total effect of service learning is low, its performance in influencing student development is high. Instruction as well as research and development demonstrated intermediate performance and importance towards student development. As such, apart from curriculum and assessment; attention should also be given to instruction as well as research and development to enhance student development.
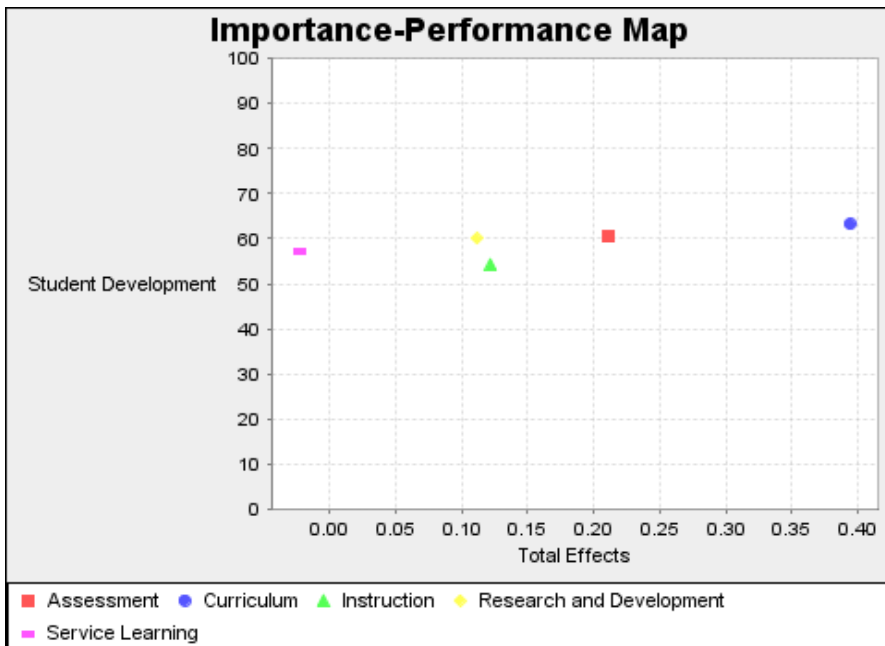

Figure 3 IPMA (priority Map) for Student Development in Public Universities

5. Discussion

This study tends to examine the relationship between quality academic process and student development in university education in Nigeria. To achieve this objective, five alternative hypotheses

were formulated. The first alternative hypotheses determine the relationship between student assessment and their overall development. The findings from the study revealed that assessment process in the universities strongly affects student's overall development and as such, the hypothesis was supported. It is evident that the relationship is positive and has r value of .234 which suggests that 100% improvement in the assessment process will bring about 23.4% increases in student development. The effect size shows that assessment has a small effect on student development, but the performance index is 60.52%. The assessment process of the lecturer needs to be improved to enhance student development.

The finding of this study is in line with Stefani (2004) who stated that evaluation of the learners' learning is very essential particularly in this varying world of university education because of the changing needs of the stakeholders' expectation of their graduates. Because of this, it becomes necessary for all the staffs to be involved in enhancing student learning especially new recruited lecturers to allow them to comprehend the basic student evaluation principles which according to Stefani (1998) will assist them in their assessment process towards student learning. This current study also supports the findings of Jimaa (2011) who concluded in his study that the manner in which students are being assessed have a wide influence towards the students' learning and; the amount of assessment of problem solving and critical thinking skills is recognize to have a positive influence on the outcomes of quality learning. He therefore saw assessment as a way of assisting learners to learn; a means of formulating decision about teaching and a means of reporting on student progress.

However, student assessment has to do with the quality of learning as well as the quality of teaching. That is, effective assessment can also serve as an avenue to showcase where a department or programme is doing well and this assists the lecturer to see how their course is applied to the overall programme. Therefore, this has a profound influence on what and how the students study; how effectively they have studied as well as how much they study. Therefore, assessment has been regarded as the cornerstone of institutional effectiveness and it is the ground work

for the improvement of the curriculum and school accountability (Preszler, 2011).

The second hypothesis is also supported as the university curriculum significantly determines student development. As revealed in the analysis, the relationship is said to be positive and the relationship coefficient suggests that a unit improvement in the curriculum will bring about 0.434 increases in student development. The result of the effect size also suggests that the curriculum has a large effect on student development. The finding of this study supports Kayode et al. (2015) who examined curriculum and attributes of faculty of education graduate in university of Ilorin. According to Kayode et al. (2015), curriculum is one of the determining factors of the quality of graduate produced by the university system. As such, curriculum to a large extent determines the competence and development of the students.

Furthermore, the findings also revealed that instruction strategy in the university system is significantly related to student development, thus the hypothesis which states that curriculum has a strong relationship with student development is supported. The relationship between instruction and student development is positive but with the r coefficient value of 0.123, it suggests low degree of correlation although, it is significant. As argued by Rautopuro and Vaisanen (2001), it is indisputable that quality teaching enhances student learning as well as inspiring improvement in both the general competences and specialist knowledge demanded by the society and working life of this modern day. Therefore, if students perceived teaching as pertinent towards the achievement of their goals, they will always be contented and therefore motivated to study harder.

Also, from the fourth alternative hypothesis that was formulated to determine how research and development are related to student development was supported. This means that a significant relationship exists between lecturers' research and development will bring about student development. The findings of this study suggest that an improvement in research practices in the university has a significant effect of student development. This

is because through research, issues surrounding student development can be addressed.

Lastly, the fifth hypothesis examined the relationship between service learning and student development in university in Nigeria. The result of the study revealed that service learning has no significant relationship with student development. This is contrary to previous findings which suggested that service learning brings about student development (Tucker, 2010). Although, the result of the important performance map analysis revealed that service learning with 57.27% performance index is essential to student development.

The R-square value of 0.623 in this study suggests that 62.3% variation in student development is explained by assessment, curriculum, instruction, research and development as well as service learning while 37.7% are explained by other variables which are not captured in this study. Therefore, the findings of these studies suggested that quality academic process components are indispensable for university education to accomplish its goals towards student development.

6. Conclusions and Implications

It is evident that for university management to enhance the quality of graduate produced in terms of their overall development; the curriculum, teaching strategies, assessment procedure, lecturer research that are tailored towards enhancing student development as well as service learning exercise are paramount in enhancing student development. Therefore, any educational institutions that wants to play an important role in this period of globalization which has ginger the calls from every educational stakeholder calling for the university system to be effective must handle its academic process with all seriousness and make it a paramount process that can see the system through in their journey towards effectiveness.

The policy maker who oversees the curriculum development should ensure effective implementation of the curriculum in order to enhance student development. The lecturers

who are the key players in the production of quality graduate should improve on their tripartite of learning which are curriculum implementations, teaching as well as student assessment.

As revealed by the coefficient of determination value of 0.623, 37.7% variation in student development is explained by other variable which are not captured in this study. Therefore, it is suggested that the future studies should examine other factors that contribute to student development and private universities should be included.

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