

Input - Output System Approach to Teacher – Student Performance Relationship for a Department in an Educational Institution

Ezeanyim Okechukwu Chiedu, Okeagu Fredrick Nnaemeka and Igwegbe Arinze Christian

Department of Industrial and Production Engineering, Nnamdi Azikiwe University, P.M.B. 5025 Awka, Anambra State, Nigeria

Abstract: Organizations are increasingly appreciating the importance of performance appraisal as a veritable tool for promoting employee growth and development, as well as enhancing productivity. To achieve this, organizations require a comprehensive and routine workforce performance appraisal, to enable it position the right skilled manpower for productivity attainment, improvement and sustainability. Descriptive research design was adopted for this study, where primary and secondary data garnered from 500 level results from five consecutive academic sessions, were used to assess teaching performance and service delivery of lecturers, within the department of a University, South East Nigeria. Results showed the student scores of 50 marks and above in 500 level courses, were used to deduce the overall performances of lecturers (79.76, 53.37, 61.16, 73.33, 59.13, 72.73, 66.12, 79.60, 83.49, 76.85, 87.50, 71.96, 84.00, 88.91, 75.86, 76.48, 72.41, 80.90, 71.93) based on course participation and students' percentage performances in taught courses.

Keywords: performance, employee, service delivery, teaching, courses, students, efficiency/effectiveness.

I. INTRODUCTION

Universities play a vital role in impacting knowledge to the society which in turn leads to a rapid growth and development of its economy. As countries and nations struggle to grow its educational sector, an essential part of this growth is human capital development. The universities contribute in ensuring that its best brains in the various professions and the society as a whole, are involved in this developmental effort. They render services that are responsible for the enlargement, development and success of an open end democratic civil society that give its students insight and theme, by, passing on knowledge as well as skills of communication which eventually leads to interactions and knowledge transfer.

The essence of having students in the university is to acquire knowledge, transfer understanding and bring about transformation with respect to reasoning and character. But a school of thought believes that these things can be measured by the performance of students in various courses taught by these lecturers in the department. Regardless of certain other limiting factors for both teacher and student, the use of students' achievement in academic work to assess the

teacher's effectiveness has gained ground. From the Victorian period, the assessment of academic performance as a sign of school success has been in place (Bell, 2013). Ever since, academic performance has been applied to grade schools and most importantly to determine one's career paths in different spheres of endeavors, as well as the series of poor performance in some cases, many students now put the blame on lecturers, inadequate learning materials and equipment, unconducive learning environment and disruptions in academic calendar etc. Likewise, lecturers blame poor performance on students distracted lifestyle, lack of focus, class attendance and so many other factors yet to be identified. However, there is yet a systematic measure to ascertain the direct causes of poor student performance and how these factors affect them, hence the need to investigate this based on causality principle, "that cause and effect are related". According to (Taal, 1996, p.16), "the teacher is increasingly becoming the focus of interest because of the key role that he or she plays in the delivery of quality education to the learner". It is therefore expected that good thinking will translate to a good product and if input indeed has any contribution on output, then with such a crop of good lecturers, there is an expectation of good output on the part of the students in an ideal situation.

It has become a difficult task for organizations to control their employee's behaviour (Attorney, 2007), but they can inadvertently control how their employees carry out their jobs. According to (Karol, 1996) performance appraisal includes a communication event planned between a manager and an employee specifically for the purpose of assessing that employee's past job performance and discussing areas for future improvement. (Fındıkçı, 2002) also agreed that performance appraisal is the process in which works, activities, weak points, competence, incompetence and in-short all aspects of the workers, are controlled no matter what position they occupy and where they work. (Aguinis, 2009) opined that performance appraisal is an ongoing process used for identifying, measuring and developing an individual's performance in accordance with an organization's strategic goals. Appraisal may therefore involve formative aspects that focus on developing performance, such as career development, professional learning and feedback as well as

summative aspects on the other hand, to evaluate performance for career progression, possible promotion or demotion, termination and more, for both teacher and students within an educational production system. (Danielson & McGreal, 2000), opined that when used for both accountability and instructional improvement, performance appraisal may be considered as that tool which identifies and enhances teaching quality for ideal quality assurance mechanism for system feedbacks, growth and development.

Therefore, the need for performance appraisal cannot be over emphasized and the performance evaluation process is seen as the teacher's guide in order to improve his ability to teach, so as to give the best of what he has. And so also, do faculty/departmental management staff need more accurate and valid data for self-improvement in areas of weak points. When the evaluation is based on facts, it enhances motivation (Appelbaum et al., 2011; Chen & Eldridge, 2012), and staff will have better measures for positive improvement, growth and development. On the other hand, in the absence of clear goals, performance appraisal can lead to employee dissatisfaction which by extension causes reduction in organizational commitment and productivity according to (Maley, 2013). Therefore, the performance evaluation system of faculty and/or departments must be entrenched to equip teachers to improve teaching methods and styles necessary to bring about the desired change and increased productivity, by improving in areas of identified weaknesses, quality and attitude etc., as maybe pointed out in the outcome of such research undertaken. (MacNeil et. al, 2005), concluded that research has shown that school leadership and teacher's quality, are top factors that contribute to students' high or low academic performance. And so also did (Yusuf, 2012), opine that the conclusions drawn from different studies have made some authors to believe that no school can be greater than their leaders and that a school is as good as its leadership.

II. METHODOLOGY

The quantitative research design approach adopted, considered the purpose of the study and the size of the target population. Quantitative research approach included the

generation of data in quantitative form which was subjected to strict quantitative analysis in a formal and stiff fashion. Mathematical calculations were used in making deductions where applicable, to observable data and expressed in terms of quantity. The quantitative research adopted was to obtain a quantitative view point of analysis and inferential techniques to ascertain effectiveness of teaching service delivery by lecturers in line with the vision and noble objectives of the university as a system known for upholding and entertaining high productivity standards globally.

The primary data source was as collected and compiled from the departmental examination records office, whereas the secondary data emanated from these primary data and used in obtaining results required for attaining the desired outcome.

A department in a University, South East, Nigeria, formed the population for this research study, while the final year students formed the sampling size.

The study adopted non-probability and purposive sampling technique to select lecturers of the department who handled courses in 500 level. Arising from these sampling techniques, the lecturers were assessed according to students' average performance in taught courses they were involved in teaching, research and service delivery to the students.

Ethical conduct and considerations were adopted to ensure that there are no detrimental effects to the research participants and/or reduce the possibility of harm to all variables considered in this research, within a university system.

Codification of lecturers and courses was introduced to ensure the anonymity of all key participants and to avoid victimization, bias and consequences of any sort in the aftermath of any adverse findings in connection with their professional duties.

III. DATA PRESENTATION, ANALYSIS AND DISCUSSION OF RESULTS

3.1: Lecturers Sessional Summary of Performance

Table 1: 2014/2015 Session

S/N	COURSE/TAG	002	003	004	005	006	007	009	011	013	030
1	A531									75.00	
2	B533	45.28									
3	C534		79.17	79.17	79.17						
4	D537				78.85						
5	E538	48.57			48.57		48.57				
6	F541										71.93
7	G543		40.32								
8	H547				38.46						

9	I536		64.00	64.00	64.00						
10	J539			69.57							
11	K542								76.60	76.60	
12	L549							83.33			
13	M550			86.21							
14	N552			73.81			73.81	73.81			
15	O556					72.73					
AVERAGE PERFORMANCE		46.93	61.16	74.55	61.81	72.73	61.19	78.57	76.60	75.80	71.93

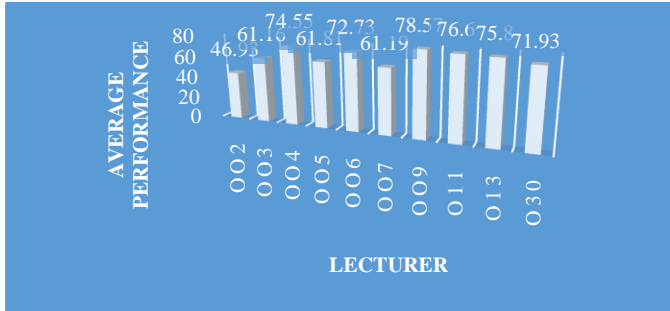


Figure 1: Plot of lecturer performance for 2014/2015 session

Table 1 shows the performances of students in taught courses for the 2014/2015 academic session as well as the lecturers who participated in the teaching of these courses, as individuals or as a team. The performances of students above the fifty-pass mark, is a measure of the overall percentage performance of students, in that course. This invariably defines the performances of the lecturers, involved in the teaching of these courses, for that session’s input and output relation.

Table 2: 2015/2016 Session

S/N	COURSE/TAG	001	002	004	005	007	009	011	013	039
1	A531								68.18	
2	B533		27.91		27.91					
3	C534			100						
4	D537				73.33			73.33		
5	E538					72.92				
6	F541	82.61								
7	G543					66.67				
8	H547				80.85			80.85		
9	I536					67.44				
10	J539			76.00						
11	K540				60.00					
12	L542				93.18					
13	M549	90.91					90.91			
14	N550						91.67			
15	O552			90.70		90.70	90.70			
16	P556									80.56
AVERAGE PERFORMANCE		86.76	27.91	88.90	67.05	74.43	90.82	77.09	68.12	80.56

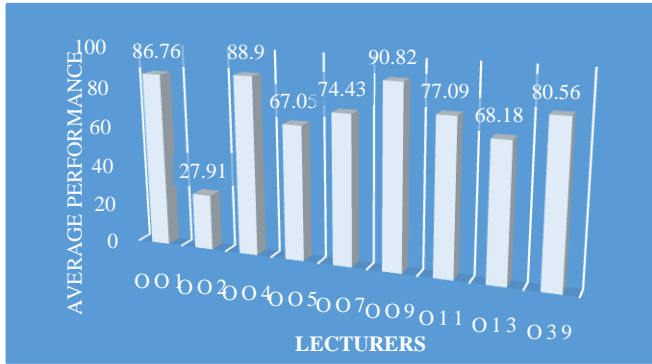


Figure 2: Plot of lecturer performance for 2015/2016 session

10	I539			56.82			
11	J540					53.85	
12	K542					55.00	
13	L544						
14	M550			63.89			63.89
15	N552			71.80			71.80
16	O556	71.80					
17	P549	80.43					80.43
AVERAGE PERFORMANCE		79.00	57.45	60.63	33.61	54.70	72.04

Table 2 shows the performances of students in taught courses for the 2015/2016 academic session as well as the lecturers who participated in the teaching of these courses, as individuals or as a team. The performances of students above the fifty-pass mark, is a measure of the overall percentage performance of students, in that course. This invariably defines the performances of the lecturers, involved in the teaching of these courses, for that session’s input and output relation.

Table 3: 2016/2017 Session

S/N	COURSE/TAG	001	002	004	005	007	009
1	A531		80.43				
2	B533		35.09				
3	C534			50.00			
4	C537				42.22		
5	D538					54.17	
6	E541	84.78					
7	F543					48.00	
8	G547				25.00		
9	H536		56.82			62.50	

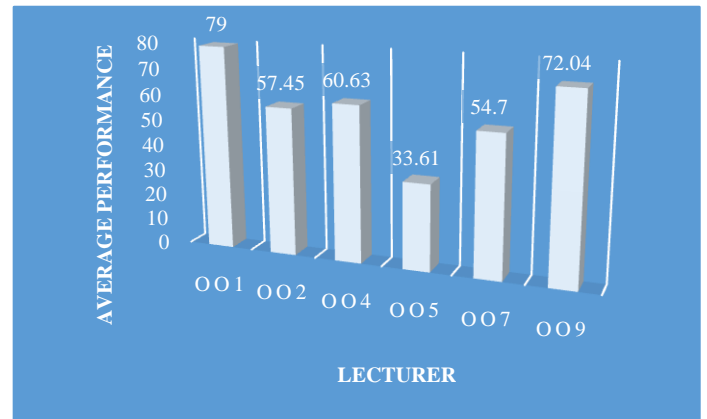


Figure 3: Plot of lecturer performance for 2016/2017 session

Table 3 shows the performances of students in taught courses for the 2016/2017 academic session as well as the lecturers who participated in the teaching of these courses, as individuals or as a team. The performances of students above the fifty-pass mark, is a measure of the overall percentage performance of students, in that course. This invariably defines the performances of the lecturers, involved in the teaching of these courses, for that session’s input and output relation.

Table 4: 2017/2018 Session

S/N	COURSE/TAG	001	002	004	005	007	009	010
1	A531		85.71					
2	B533		43.24		43.25			
3	C534							
4	D537				50.00			
5	E538				72.22			
6	F541	62.86						
7	G543					57.89		
8	H547							91.18
9	I536					67.65		
10	J539			52.94				
11	K540				41.67			

12	L542				79.41			
13	M544							
14	N549			58.07			58.07	
15	O550				58.07		58.07	
16	P552	80.65						
17	Q556	69.44					69.44	
18	R544				80.00			
AVERAGE PERFORMANCE		70.98	64.48	55.51	61.65	62.77	61.86	91.18

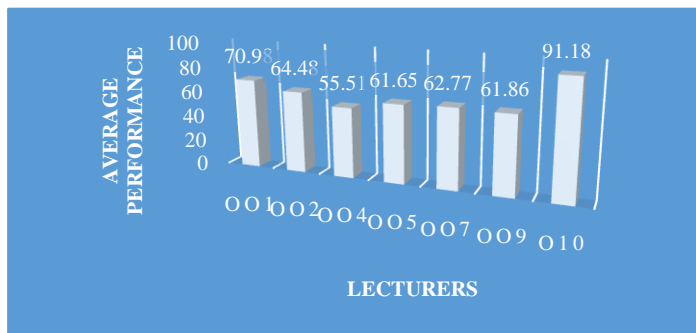


Figure 4: Plot of lecturer performance for 2017/2018 session

Table 4 shows the performances of students in taught courses for the 2015/2016 academic session as well as the lecturers who participated in the teaching of these courses, as individuals or as a team. The performances of students above the fifty-pass mark, is a measure of the overall percentage performance of students, in that course. This invariably defines the performances of the lecturers, involved in the teaching of these courses, for that session’s input and output relation.

Table 5: 2016/2017 Session

S/N	COURSES/ TAG	001	002	004	005	007	009	010	012	014	015	017	018	019	020
1	A531		72.41											72.41	
2	B533		67.74		67.74										
3	C534			70.97											
4	D537				70.97										
5	E538				93.10										
6	F541	75.86										75.86			
7	G543					75.00									
8	H547					83.87									
9	I536	74.29				74.29									74.29
10	J539			90.32						90.32	90.32		90.32		
11	K540				51.61			51.61		74.19			51.61		
12	L542				74.19										
13	M549	96.69					96.69								
14	N550						87.50								87.50
15	O552			100			100	100							
16	P556								87.50	87.50	87.50		87.50		
AVERAGE PERFORMANCE		82.28	70.08	87.10	71.52	77.72	94.73	75.81	87.50	84.00	88.91	75.86	76.48	72.41	80.90

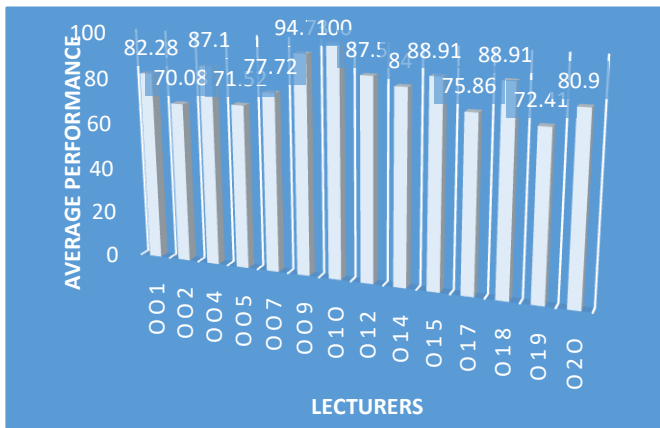


Figure 5: Plot of lecturer performance for 2018/2019 session

The Summary of lecturer performance is as presented in Table 1 to 5 above with specific codes assigned to lecturers. The percentage performance of lecturers was deduced from the number of courses taught by each lecturer, to determine their individual average performance. Also, Figures 1 to 5 displayed the summary of every lecturers’ performance across each session, garnered from the performance of students in course(s) taught by them.

3.2 Cumulative Average Performance

The table below summarizes the average performance of lecturers in codes for all 500 level courses taught within the department, for each semester per session for five yearly academic sessions understudied and as a measure of teaching effectiveness, based on students’ performance. Other information such as expertise/experience, qualification and gender may as well be used as a measure of comparison for performance, individually or collectively. Note also that, the coding adopted for lecturers, was to avoid victimization and probable bias.

On the overall, the average performance of every departmental lecturer that taught one or more final year course(s) between 2014/2015 and 2018/2019 session was computed as shown below in Table 6.

Table 6: Cumulative Lecturers’ Performance

SESSION/LECTURER	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	CUMULATIVE AVERAGE PERFORMANCE
001		86.72	79.00	70.98	82.28	79.76
002	46.93	27.91	57.45	64.48	70.08	53.37
003	61.16					61.16
004	74.55	88.90	60.63	55.51	87.10	73.33
005	61.81	67.05	33.61	61.65	71.52	59.13
006	72.73					72.73

007	61.19	74.43	54.70	62.77	77.72	66.12
009	78.57	90.82	72.04	61.86	94.73	79.60
010				91.18	75.81	83.49
011	76.60	77.09				76.85
012					87.50	87.50
013	75.80	68.12				71.96
014					84.00	84.00
015					88.91	88.91
017					75.86	75.86
018					76.48	76.48
019					72.41	72.41
020					80.90	80.90
030	71.93					71.93

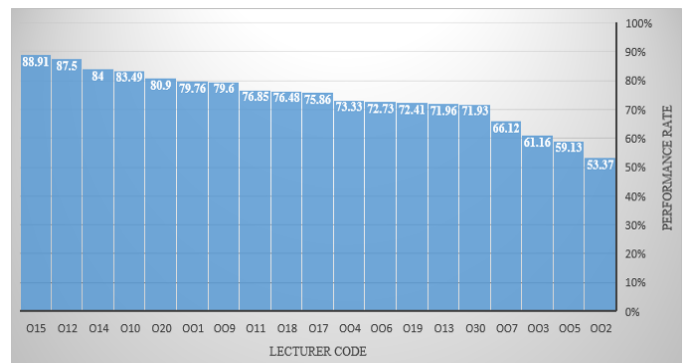


Figure 6: Plot of overall lecturer performance for 2014/15-2018/19 sessions

3.3 Discussion of Results

The performances (output) of students in all 500L courses taught by various lecturers in teams, were equated or adjudged to be the performance (input) of these lecturers individually, across the various sessions and courses involved in and as understudied in this research work. This is as also deduced from the theoretical framework backed by literature, that a students’ performance (output) in examination, is invariably a measure of the teaching effectiveness (input) and therefore a veritable tool for performance appraisal of an educational system’s efficiency.

A total of 19 lecturers were involved in the teaching of 500 level courses in the department as appraised. It was observed from the cumulative average lecturer performance as presented in both Table 6 and Figure 6, wherein only 5 lecturers performed at 80% and above, whereas 10 performed between 70-79% while 4 performed within the 50-69% score range.

A greater number of lecturers performed averagely and those who crossed the 80% mark are believed to have performed better than others in delivering their duties and carrying out

their responsibilities as lecturers in the department due to their key attributes of age, gender and qualification while teaching styles and methodology, relationship with students as well as availability too, are a few other core attributes.

Four lecturers fell between the 50-69% marks. This does not ultimately indicate poor performance but tells us that there is need for improvement in order to achieve maximum productivity within this category of lecturers who have higher years of experience, age and qualification, as against those in the 80% and above band.

Aside these obvious lecturer features and attributes, his or her performances vis-a-vis student performance, could also be stifled and muffled by poor performance of other team members, during team-teaching, hence the cumulative compilation of yearly performances in different courses as well, for a better determination, presentation and capture of teacher's optimum performance while teaching students.

IV. CONCLUSION

The effectiveness of organizational workforce has been effectively evaluated using students' results and percentage performances, to measure lecturers' teaching efficiency in final year students within the department of a University in South East, Nigeria, and through five consecutive academic sessions.

Lecturers in the department have done fairly well over the years in 500L course teaching, with cumulative performances above 80% and none fell below the 50% mark. This also implies that there is need for greater effort to be able to achieve maximum productivity, surpass current state and ensure its sustainability.

The roles of other variables and peculiarities of gender, teaching style, attitude qualification and years of experience in teaching performances, has opened new areas of research for the future in an attempt to attain/achieve maximum efficiency in input-output relationship between Teacher and student within a university system.

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