Performance of academic staff in polytechnics: an analysis of performance levels in North West geo–political zone of Nigeria

Abstract
This study analysed performance levels of academic staff in North West geopolitical zones of Nigeria. The objectives of the study were to analyse the performance levels of academic staff, to deconstruct performance roles of academic staff and to establish the independence of academic staff roles in polytechnics in Nigeria. This cross-sectional survey involved a sample of 285 respondents from six polytechnics. Data were collected using a self-administered a questionnaire and analysed using descriptive statistics, Exploratory Factor Analysis and correlation. Descriptive results revealed that teaching, supervision, research and publication and community service were rated as being good. However, innovation was rated as being poor. Factor analysis revealed that teaching, supervision; research and publication, innovation and community service were valid measures for performance of academic staff. Correlation analysis revealed that inter-relatedness between the performance domains of academic staff was low hence they were independent performance domains of academic. Therefore, it was concluded that academic staff effectively carried out teaching, supervision, research and publication and community service. However, innovation performance was ineffective. Hence, it was recommended that managers in polytechnics besides the teaching, supervision, research and publication and community service performance needed to emphasise innovation performance. Researchers should also further test the performance of academic staff measures developed by this study.

Keywords: academic of staff, factor analysis, performance, performance levels, polytechnics

Introduction
Different scholars have defined performance in various ways. Armstrong defines performance as being the accomplishment, execution, carrying out, working out of anything ordered or undertaken leading to outputs/outcomes (accomplishment) or achieving of results. Bautista et al. indicate that performance is the achievement of specific tasks measured against predetermined or identified standards of accuracy, completeness, cost and speed. Hafeez & Akbar define performance as referring to the achievement of specified tasks measured against predetermined or identified standards of accuracy, completeness, cost and speed. Performance has been conceptualised as multi-dimensional construct involving job–specific task proficiency, non–job–specific proficiency (such as organisational citizenship behaviour), written and oral communication proficiency, demonstration of effort, maintenance of personal discipline, facilitation of peer and team performance, supervision/leadership and management/administration aspects. Overall, the definition and conceptualisation of performance point to the effect that performance is the effective accomplishment of tasks. Effective performance in organisations leads to accomplishing of organisational goals and objectives, quality of output, workmanship, adherence to standards, achievement of performance standards, increased effectiveness and a better use of available resources. Therefore, performance is important as far as organisational success is concerned.

Different scholars have studied performance of academic staff in institutions of higher learning. Astin & Lee revealed that academic staff roles involved classroom teaching and research. Blass & Hayward reported that academic staff played a role in supporting, sustaining, developing and promoting innovation in society. Centra reported on the academic staff roles of community and public service, advising students and service to the institution. Hassna & Raza revealed three academic staff roles, namely; teaching, scholarly endeavour; and service to the university indicated that academic staff carried out teaching, supervision, research and innovation, publication, consultancy and services. Iqbal et al. pointed out that academic staff produced development solutions through innovations. Mushemeza reported that the centrality of quality academic staff was a reality in terms of designing relevant programmes and courses, teaching, examination and supervision of students’ research.

A summary of the deconstruction of performance of academic staff by the studies above suggests that performance of academic staff involves teaching, research and publication, innovation and community service. Those identified performance roles of academic staff to a large extent reflects performance expectations for academic staff in higher institutions in Nigeria. Abdulsalam & Mawoli reported on teaching and research performance of academic staff in universities in Nigeria. Mawoli & Babandako indicated that performance of academic staff in universities in Nigeria was in terms of attendance teaching, research and publications. Ologunde Akindele & Akande revealed that performance measures for lecturers in Nigeria were research, teaching and community services performance. Similarly, Timukeya in a study in Nigeria reported that the job description of academics involved three major elements, namely; teaching, research and publication. Hence there is a gap about the performance domains of academic staff of supervision and innovation performance.
Still, none of the studies reported on performance of academic staff in polytechnics. Therefore, this study analysed the performance levels of academic staff in polytechnics in Nigeria.

Statement of the problem

Academic staffs carry out teaching, supervision, research and community service. These roles are important as far as the development of a country is concerned. This is because academic staff teaching, research and innovations academic have the potential for mutually beneficial interaction with the enterprise sector. Academic staffs also equip students with the ability to generate new ideas. Through community service, academic staff promote social service, financial literacy, health and reduced crime in communities. A number of studies have analysed the performance roles of academic staff. However, none of these studies analysed performance levels academic staff in polytechnics Nigeria. Therefore, this study sought to establish performance levels academic staff in the polytechnics.

Objective of the study

This study analysed performance levels of academic staff in North West geo–political zones of Nigeria.

Literature review

Different scholars have analysed performance of academic staff. Astin & Lee found that classroom teaching and research were given equally high weight in assessing faculty performance. Cadez et al. revealed that research productivity was not related to teaching quality, whereas research quality was positively related with teaching quality. Centra reported that in research universities, with large Ph.D. programs and heavy financial support for research, research was the most important activity for the faculty and teaching was second in importance. At the doctoral–granting universities and the comprehensive universities and colleges, teaching was ranked first in importance, followed closely by research. Community and public service, student advising and service to the institution were considered the relatively minor activities. Ghannam reported that integration of teaching and research with community service was necessary for the advancement of society. Hassan & Raza found a significant positive relation between the faculty teaching and service performances. However, there was no support to establish significant relationship between the scholarly endeavour with either of teaching or service performance.

Mawoli & Babandako established that performance of academic staff in terms of teaching was very high but moderate in the areas of research and other publications. Ologunde et al. reported that any effort directed at improving the performance of lecturers in a university must be rooted in identifying the appropriate educational policies that will help to achieve desired goal of lecturers’ performance in the area of research, teaching and community services. Timuke established that principally research performance was given major consideration in performance more significant that teaching and community service. The studies above showed that depending on the institution, weight given to classroom teaching and research was different. However, research productivity was not related to teaching quality. Nevertheless, there was a significant positive relation between the faculty teaching and service performances. Thus, integration of teaching and research with community service was necessary for the advancement of society. With respect to performance levels, performance of academic staff in terms of teaching was very high but moderate in the areas of research and other publications. However, none of the studies assessed academic staff in polytechnics. This thus attracted this study to be carried out in polytechnics.

Methods

Design and instrument

The study adopted a cross–sectional design since it was a survey involving a large number of respondents. A self–administered questionnaire (SAQ) was used to collect data. The self–administered questionnaire was made of two sections namely A and B. Section A contained question items based on the nominal scale (categorical) on background characteristics of the respondents. The question items were on name of polytechnic, ownership of the polytechnic, position of the respondent in the polytechnic and terms of employment. Section B contained ordinal questions scaled using the four–point Likert scale from a minimum of 1 strongly disagree (SD), 2 disagree (D), 3 agree (A) and 4 strongly agree (SD) on the study variable, namely academic staff performance. The question items were on teaching, supervision, research and publications, innovation and community services.

Sample

The sample was made up 285 academic staff from six polytechnics which were three federal and three state owned. The modal percentage percentage (24.6%) was from Kaduna Polytechnic Kaduna State followed by 20.7% from Federal Polytechnic Kazaure, 10.2% from The federal Polytechnic Kaura Namoda, 16.5% from Katsina State Polytechnic, 14.0% from Sokoto Polytechnic, 13.7% from Kano State Polytechnic and 10.5% from The federal Polytechnic Kaura Namoda. The larger percentage 55.8% was from federal polytechnics with 44.2% being from state polytechnics. The modal percentage (23.2%) on first appointment were Assistant Lecturers, followed by Lecturer II (21.8%), then senior lecturers (12.1%), both for Lecture II and Principle Lectures each was 11.1%, Lecturer I (10.7%) and chief lectures were the least percentage (10.0%). The modal percentage (18.6%) on second appointment were Principle Lectures, followed by Senior Lecturers (16.5%), Lecture I (14.7%), Chief Lecturers (11.8), Lecturer II (11.5%) and Lecture II (10.0%). The modal percentage (90.4%) was of those employed on permanent basis followed by those on contract basis (5.7%), those on probation were 2.1% and 1.8% on part–time.

Data management

After data collection, the questionnaires were coded, data entered into the computer using the Statistical Package for Social Sciences (SPSS), summarised using frequency tables and edited them to remove errors. Validity of the instrument was confirmed using Exploratory factor analysis (EFA), particularly Direct Oblimin Oblique method to establish correlation among factors. Reliability was determined by calculating Cronbach alpha using SPSS. Reliability results are presented below Table 1. Regression analysis involved building a predictive model by regressing the numerical index of the dependent variable that is academic staff productivity on the numerical indexes of the independent variables (IVs), namely transformational and transactional leadership practices. The Statistical Package for Social Sciences (SPSS) was used to carry out data analysis.

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Table 1 Means and Factors Loadings for the Components of Performance of Academic Staff

| Constructs | Means | Over all TP factors | SP factors | RP factors | IP factors | CP factors |
|------------|-------|---------------------|------------|------------|------------|------------|
|            |       | means               |            |            |            |            |
| a) TP      |       |                     |            |            |            |            |
| TP1        | 3.11  | 3.23                | 0.603      | 0.506      |            |            |
| TP2        | 3.19  |                     | 0.710      |            |            |            |
| TP3        | 3.42  |                     | 0.768      |            |            |            |
| TP4        | 3.44  |                     | 0.733      |            |            |            |
| TP5        | 3.35  |                     | 0.680      |            |            |            |
| TP6        | 3.20  |                     | 0.691      |            |            |            |
| TP7        | 3.09  |                     | 0.691      |            |            |            |
| TP8        | 3.21  |                     | 0.769      |            |            |            |
| TP9        | 3.14  |                     | 0.598      |            |            |            |
| TP10       | 3.19  |                     | 0.698      |            |            |            |
| b) SP1     | 3.30  | 3.16                |            | 0.755      |            |            |
| SP2        | 3.35  |                     |            | 0.791      |            |            |
| SP3        | 3.24  |                     |            | 0.815      |            |            |
| SP4        | 3.45  |                     |            | 0.810      |            |            |
| SP5        | 3.46  |                     |            | 0.726      |            |            |
| SP6        | 2.94  | 0.507               |            | 0.696      |            |            |
| SP7        | 2.99  |                     |            |            |            | 0.720      |
| c) RP1     | 2.19  | 2.69                |            |            |            | 0.624      |
| RP2        | 2.33  |                     |            | 0.636      |            |            |
| RP3        | 2.26  |                     |            | 0.518      | 0.618      |            |
| RP4        | 2.17  |                     |            | 0.362      |            |            |
| RP5        | 3.12  |                     |            | 0.715      |            |            |
| RP6        | 3.33  |                     |            | 0.704      |            |            |
| RP7        | 2.95  |                     |            | 0.644      |            |            |
| RP8        | 2.48  |                     |            | 0.632      |            |            |
| RP9        | 3.04  |                     |            | 0.765      |            |            |
| RP10       | 3.12  |                     |            | 0.706      |            |            |
| d) IP1     | 2.21  | 2.43                |            |            |            |            |
| IP2        | 2.43  |                     |            | 0.812      |            |            |
| IP3        | 2.19  |                     |            | 0.821      |            |            |
| IP4        | 3.12  |                     |            | 0.333      |            |            |
| IP5        | 2.21  |                     |            | 0.742      |            |            |
| e) CP1     | 3.33  | 3.16                |            |            |            | 0.783      |
| CP2        | 3.31  |                     |            |            |            | 0.860      |
| CP3        | 3.10  |                     |            |            |            | 0.815      |
| CP4        | 3.10  |                     |            |            |            | 0.852      |
| CP5        | 3.01  |                     |            |            |            | 0.851      |
| CP6        | 3.24  |                     |            |            |            | 0.867      |
| CP7        | 3.04  |                     |            |            |            | 0.783      |
| CP8        | 3.12  |                     |            |            |            | 0.760      |

Abbreviations: Alpha (α): Teaching *0.877, **0.873; supervision *0.816, **0.823; research and publication *0.821, **0.818; innovation 0.761 and community service 0.930.

*Initial α, **subsequent α after dropping cross loading or low loading items.

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Results on performance of academic staff levels

To establish performance levels of academic staff on each of the five performance aspects, namely; teaching, supervision, research and publications, innovation and community services, a descriptive analysis was carried out. The means on the respective items in Table 1 suggest that the respondents rated their teaching (overall mean = 3.23), supervision (overall mean = 3.22), research and publication (overall mean = 2.90) and community service (overall mean = 3.26) performance as good. This is because basing on the scale used, the means corresponded to “agree” indicating good self-rating. However, the respondents rated their innovation (overall mean = 2.26) as poor because basing on the scale used, the means corresponded to “disagree” indicating poor self-rating. Overall, performance of academic staff (mean = 2.93) was good. Table 1 also shows that Exploratory Factor Analysis (EFA) was carried out. Factor loadings of the respective items on a given component/factor are given in Table 2 after a Direct Oblimin Oblique analysis. Considering loadings of at least 0.5 on one component as strong (Costello & Osborne, 2005), Table 2 suggests that with the exception of the first item (TP1) under the teaching construct, seventh items (SP7) under supervision and third item (RP3) which cross loaded and the fourth item (RP4) under research and publication which loaded low, the rest of the items on all performance aspects loaded highly. The items that cross loading and those loading low were eliminated from subsequent analyses. The eigenvalues from EFA for each of the five constructs (teaching, supervision, research and publications, innovation and community services) were as follows: Teaching reduced to two factors, where the respective factors had 4.848 and 1.136 eigenvalues. Supervision was also reduced to two factors with respective factors having 3.632 and 1.122 eigenvalues. Research and publications was also reduced to two factors with respective factors having 39.489 and 1.729 eigenvalues. For innovation and community services were each reduced to one factor having 2.626 and 5.410 eigenvalues respectively.

Correlation analysis results for the five performance domains of academic staff given in Table 2 suggest that all the three constructs were inter-related. However, the correlations between supervision and teaching ($r = 0.627$, $p = 0.00 < 0.05$) and community service and research innovation ($r = 0.428$, $p = 0.00 < 0.05$) were moderately positive and significant. The correlations of the rest of the constructs were weakly positive and significant. This means that the inter-relatedness between the constructs was low. Hence the different constructs were independent performance of academic staff domains.

### Table 2 Inter-correlations of Performance Domains of Academic Staff

|                | Teaching | Supervision | Research and publication | Innovation | Community service |
|----------------|----------|-------------|--------------------------|------------|-------------------|
| Teaching       | 1        | 0.627**    | 0.202**                  | 0.142*     | 0.219*            |
| Supervision    | 0.000    | 1           | 0.296**                  | 0.075      | 0.219             |
| Research and publication | 0.001 | 0.000    | 1                        | 0.274**     | 0.000             |
| Innovation     | 0.018    | 0.219       | 0.000                    | 1           | 0.000             |
| Community service | 0.000 | 0.001    | 0.428**                  | 0.228*     | 1                 |

Discussion

Descriptive results revealed that teaching, supervision, research and publication and community service were rated as being good. However, the respondents rated innovation as being poor. However, the findings were inconsistent with Mawoli & Babandako who established that performance of academic staff in terms of teaching was very high but moderate in the areas of research and other publications. Similarly, the finding is inconsistent with Centra who reported that in research universities, with large Ph.D. programs and heavy financial support for research, research was the most important activity for the faculty and teaching was second in importance. At the doctoral–granting universities and the comprehensive universities and colleges, teaching was ranked first in importance, followed closely by research. Community and public service, student advising and service to the institution were considered the relatively minor activities. Tinuke established that principally research performance was given major consideration in performance more significant that teaching and community service. This means that largely, in polytechnics emphasis on the various performance domains of academic staff was equal contrary to the findings of previous scholars. With respect to the finding that performance domains of academic staff were independent, this is in agreement with most of the previous scholars. For instance, Cadez et al. revealed that research productivity was not related to teaching quality, whereas research quality was positively related with teaching quality. Hassna & Raza found no significant relationship between the scholarly endeavour with either of teaching or service performance. Ologunde et al. reported that any effort directed at improving the performance of lecturers in a university must be rooted in identifying the appropriate educational policies that will help to achieve desired goal of lecturers’ performance in the area of research, teaching and community services. On the contrary, Hassna & Raza found a significant positive relation between the faculty teaching and service performances. Nevertheless, overall it can be stated that performance domains of academic staff were independent. Therefore, the current study suggests that in polytechnics teaching, supervision,
research and publication and community were given equal emphasis there is independence performance domains of academic staff.

**Conclusion**

The findings suggest that teaching, supervision, research and publication and community service were good in polytechnics but innovation was poor. Also, teaching, supervision, research and publication, innovation and community services were valid measures for performance of academic staff. Finally, since the inter-relatedness between the performance domains of academic staff was low, this suggested that they were independent performance domains of academic. Therefore, academic staff effectively carried out teaching, supervision, research and publication and community service. However, innovation performance was ineffective. Hence, it was recommended that managers in polytechnics besides the teaching, supervision, research and publication and community service performance needed to emphasise innovation performance.

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None.

**Conflict of interest**

Author declares that they have no conflict of interest.

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### Appendix: Study Instrument

#### Section A: background characteristics

| Item     | Measure                                                                 |
|----------|-------------------------------------------------------------------------|
| BV1      | Name of the Polytechnic the respondent worked in                        |
| BV2      | Ownership of the polytechnic the respondent worked in work             |
| BV3      | Position on first appointment in the polytechnic                        |
| BV4      | Current appointment in the respondent in the polytechnic               |
| BV5      | Terms of employment of the respondent in the polytechnic               |

#### Section B: Performance of academic staff

Items rated on a 4-point Likert scale from 1 = strongly disagree to 4 = strongly agree.

| Domain                  | Item     | Measure                                                                 |
|-------------------------|----------|-------------------------------------------------------------------------|
| Teaching (TP)           | TP1      | I am always punctual and come to class with lesson plan                 |
|                         | TP2      | I teach courses according to course plan with various teaching materials|
|                         | TP3      | I offer a simple, clear, concise language during lecturers.             |
|                         | TP4      | I keep the interest of student alive during lessons                     |
|                         | TP5      | I am compassionate and tolerant to students to some extent.             |
|                         | TP6      | I offer a sufficient number and quality of course related resources    |
|                         | TP7      | I have consultation time to attend to the students.                     |
|                         | TP8      | I facilitate my teaching on time.                                       |
|                         | TP9      | I do extra time of teaching if it is necessary                         |
|                         | TP10     | I finish my syllabus on time.                                           |
| Supervision (SP)        | SP1      | I help students to complete their dissertations/ research project within the stipulated time |
|                         | SP2      | I allow my studies to consult me regularly                             |
|                         | SP3      | Whenever my supervisees need me I am available                          |
|                         | SP4      | My students are free to ask me any question related to their work      |
|                         | SP5      | I motivate my students to work hard on their studies.                   |
|                         | SP6      | I have helped students to publish their work                           |
|                         | SP7      | I establish benchmarks to be achieved by my students by specific dates  |
| Research and publication (RP) | RP1 | I have authored a textbook                                              |
|                         | RP2      | I have written a book chapter                                           |
|                         | RP3      | I have co-authored a textbook                                           |
|                         | RP4      | I have a patented and certified invention                               |
|                         | RP5      | I have been able to produced an occasional paper.                       |
|                         | RP6      | I have produced a journal article                                       |
|                         | RP7      | I have written a technical report                                       |
|                         | RP8      | I have authored a scientific peer-reviewed bulletin                     |
|                         | RP9      | I have published locally and international                              |
|                         | RP10     | I have published a paper in a seminar locally and internationally       |
| Innovation (IP)         | IP1      | I spend time trying to create products invest machineries for industries.|
|                         | IP2      | I have made original products in the course of my duties with the students |
|                         | IP3      | I have patented some innovations I made                                 |
|                         | IP4      | I try to be creative as I carry out my work with students              |
|                         | IP5      | My products produced while working in this polytechnic are already in the market |
| Community Service (CP)  | CP1      | As a member of staff of this polytechnic I participate in community events |
|                         | CP2      | I have participated in community improvement programmes as a member of this polytechnic |
|                         | CP3      | I am involved in offering training sensitization and mobilisation services to community. |
|                         | CP4      | I am involved in promoting the civic duties of the community.           |
|                         | CP5      | I am involved in collaborations with communities and stakeholders.      |
|                         | CP6      | As a member of staff I participate in community activities             |
|                         | CP7      | As a member of staff I am involve in training the youth in community activities |