

MODEL FOR STAFF ASSESSMENT AND PROMOTION OF ACADEMIC AND SENIOR NON-TEACHING STAFF OF THE FEDERAL UNIVERSITY OF KASHERE, GOMBE STATE

Abubakar Bello^{#1} and Mohammed Yakubu^{*2}

[#] Department of Information Technology, Faculty of Computing, Modibbo Adama University, Yola, Adamawa State, Nigeria

^{*} Information and Communication Technology Directorate, Federal University of Kashere, Gombe, Gombe State, Nigeria

Abstract— Staff assessment is a vital process for enhancing institutional efficiency and supporting personnel development in universities. However, at the Federal University of Kashere, Gombe, the existing semi-manual appraisal system is associated with delays, data redundancy, frequent errors, limited transparency, and high administrative costs. This study aims to design a structured staff assessment system tailored to both academic and senior non-teaching staff in order to address these challenges. The proposed system architecture was modeled using the Unified Modeling Language (UML) to clearly represent appraisal workflows, stakeholder roles, data flow, and feedback mechanisms, with Microsoft Visio employed as the modeling tool. The resulting model streamlines appraisal procedures. The study provides a conceptual foundation for improving staff appraisal processes in Nigerian universities. Future research is recommended to implement and evaluate a full-scale prototype of the system and to integrate artificial intelligence techniques to enhance assessment accuracy, reduce bias, and support data-driven personnel management.

Index Terms— Assessment, Automated, Appraisal, Unified Modeling Language

I. INTRODUCTION

Assessment plays a vital role in effective decision-making within educational institutions, whether it focuses on students or staff. Student assessment involves the systematic collection and analysis of information to measure learning progress, improve teaching practices, and inform curriculum design and policy decisions. Through this process, institutions are better positioned to enhance educational quality and learning outcomes (Gardner et al., 2023)

In a similar manner, staff assessment refers to the structured evaluation of employees based on defined job-related criteria. It is used to identify staff competencies, support recruitment and promotion decisions, and facilitate appropriate job placement or role adjustments. By aligning staff capabilities with institutional objectives, staff assessment contributes to improved organizational effectiveness and overall institutional performance [2].

An effective university staff assessment system is therefore essential for evaluating both academic and non-academic personnel. For academic staff, such systems assess contributions across teaching, research, community service, and administrative responsibilities. Performance indicators are used to measure outcomes against institutional standards, while transparency is enhanced through mechanisms such as publicly available academic portfolios [3]. Likewise, administrative staff are assessed using predefined performance metrics, job descriptions, and individual achievements, with emphasis on improving efficiency, service quality, and institutional commitment. The assessment process also supports staff training and development initiatives aimed at strengthening skills, motivation, and productivity [4].

Empirical evidence supports the importance of staff assessment in universities. A study conducted at Kwara State University found that performance appraisal practices have a significant positive effect on academic staff productivity. The appraisal process, which covered teaching effectiveness, research output, community engagement, and professional development activities, demonstrated a strong relationship with overall job performance [5].

In Federal University of Kashere, Gombe State, the appraisal process is currently semi-manual. However, there are practical difficulties associated with paper-based appraisal processes, including excessive space consumption, vulnerability to damage, security risks, limitations in document mobility, high costs of printing appraisal forms, and the lack of on-demand document accessibility. These issues have highlighted the urgent need for a more efficient and reliable appraisal mechanism.

To address these challenges, this research introduces the modelling of the assessment system centered to the specific operational and structural needs of the university. The model serves as the foundation for developing an automated staff assessment system that will streamline the performance evaluation of staff at Federal University of Kashere, Gombe, thereby eliminating the practical problems inherent in manual processes.

Furthermore, empirical studies on performance appraisal

systems have largely overlooked senior non-teaching staff. Recognizing this gap, the current study models an assessment that, if implemented capable of annually evaluating and rating the performance of all relevant staff categories. Through this modelling approach, the study aims to establish a more holistic, scalable, and inclusive assessment system.

A. Statement of the Problem

In Federal University of Kashere, Gombe State annual performance evaluation report forms are filled in duplicate manually and are routed through superior for assessment. Sometimes these forms are submitted lately by staff, very often feedback is not given in due course to enable staff to make the necessary adjustment in performance. Not only that working with manual APER forms has some drawbacks, such as a delay in retrieving any necessary information at the click of a button, an inability to search and retrieve records quickly, a need for a large amount of storage space, human errors, inaccurate, inconsistent, redundant data, and high production costs for APER forms. The whole process became time-consuming, laborious, and cumbersome. To solve the inadequacies and difficulties of the current manual appraisal method at the Federal University of Kashere Gombe, modeling an assessment information system was judged appropriate.

B. Aim and Objectives of the Study

The study aims to design a model for an effective assessment in the Federal University of Kashere. This can be achieved with the following objectives:

To design a model for staff assessment and promotion for academic and senior non-teaching staff of the Federal University of Kashere, Gombe State

II. LITERATURE REVIEW

Generally, performance appraisal serves as an evaluation and development tool in organizations. Performance appraisal provides a realistic and reliable basis for making crucial management decisions with regard to compensation, employee development, motivation, and promotion, necessary for employee productivity [6].

A. Performance Appraisal

Employee performance arises from human behavior and serves as a critical indicator for assessing individual work effectiveness. Consequently, the overall success or failure of an organization is largely determined by how well its employees perform their assigned duties. High levels of performance contribute significantly to organizational growth and continuous improvement [7]. Performance appraisal is a systematic process used to assess employee behavior in the workplace, encompassing both measurable outcomes and qualitative aspects of job execution [8].

In the university setting, performance appraisal can be described as a structured and systematic process for assessing the job performance of both academic and non-academic staff, including senior and junior personnel, based on clearly defined assessment criteria. This process involves the use of standardized rating measures and feedback mechanisms that enable staff to identify areas requiring improvement, as well as their strengths and developmental needs. Through this process, the institution is able to make informed decisions

regarding staff development and performance enhancement. Unlike some integrated appraisal models, the university performance appraisal system does not typically permit junior staff to evaluate their senior colleagues. As a result, performance appraisal in this context is not merely a multidirectional evaluation approach, but rather a formal assessment guided by predefined criteria and rating frameworks. These frameworks are applied to determine staff eligibility for key administrative decisions such as promotion, confirmation, or advancement, as applicable. An appraisal information system refers to a computerized application designed to assess employee performance against specified evaluation standards [9]. In essence, an appraisal information system is a software-based tool that facilitates systematic staff evaluation using established criteria, intending to identify individual and organizational strengths and weaknesses, while ensuring that the intended goals of the appraisal process are effectively achieved.

B. Promotion

Promotion refers to the advancement of an employee to a higher rank or position within an organizational hierarchy. This advancement is typically associated with increased responsibilities, greater authority, higher status, improved facilities, enhanced expectations for competence, and corresponding increases in salary and other allowances [10]. In essence, promotion involves assigning employees to roles that require greater responsibility and decision-making authority. Simply put, it is the movement of an employee from a lower position to a higher one within the organization. Job promotion is commonly influenced by several key indicators, including employee loyalty, educational or professional qualifications, and demonstrated achievements. It represents the most prevalent form of internal staff mobility within organizations, serving as a mechanism for motivating employees and recognizing merit [11].

According to the Federal University of Kashere (FUK) Conditions of Service (2016), promotion is defined as the progression of a staff member from one salary scale to another, excluding advancement through periodic review or direct appointment. Such promotion is deemed effective from the 1st of January of the relevant year. Promotion may occur in either vertical or horizontal forms. Vertical promotion involves the movement of an employee from a lower grade to a higher grade, accompanied by increased rank, responsibility, and remuneration. Horizontal promotion, on the other hand, entails a change in role or department at the same grade level, often with expanded responsibilities and duties but without a significant change in rank or salary.

C. Theoretical Review

The Technology Acceptance Model (TAM) is derived from the Theory of Reasoned Action (TRA). TRA is based on the idea that a person's perceptions and reactions toward a system influence their attitude, which in turn shapes their behavior. TAM, which originates from psychological theory, is used to explain how users accept and use computer systems. It focuses on factors such as trust, user attitudes, intention to use, and actual system usage [12].

The main purpose of TAM is to explain the key factors that influence users' acceptance of information technology. It does this by identifying specific dimensions that affect users'

decisions to adopt and use technology. According to [12], the acceptance of information technology is influenced by six main constructs: external variables, perceived ease of use, perceived usefulness, user attitude, behavioral intention, and actual system use. These constructs are used to predict and measure user acceptance of computer-based systems. Among them, perceived usefulness and perceived ease of use are considered the most important factors in determining whether a system will be used. used.

In addition, the concept of information systems design theory refers to a structured body of ideas, assumptions, and principles drawn from both natural and social sciences. This theory helps system designers understand problems and develop appropriate solutions for specific classes of information system challenges [13]. Design theory is built on shared beliefs, norms, and concepts and is characterized by two main features. First, every design reflects a theory-in-use, meaning that the quality of a design can be assessed based on how well it performs when applied in practice. A design theory is considered valid when the application of its principles produces effective results. Second, design theory provides practical guidelines by offering general rules that support good design practices [13].

In this study, the first approach, known as Kernel Theory, is adopted. Kernel Theory consists of fundamental concepts and principles that are scientifically formulated and used to guide system design. These theories are made explicit through a systematic interpretation and documentation process, ensuring that the design decisions are theoretically grounded [14].

III. MATERIALS AND METHODS

Models are visual representations of real-world systems. They provide a simplified and abstract view of how a system works, while diagrams and drawings offer clear and concrete illustrations of system components and processes [15]. In this study, Unified Modeling Language (UML) models were used to describe the structure and behavior of the appraisal information system. These models help to illustrate the system architecture and give clear views of the steps and processes involved at different stages of the system design.

The UML diagrams used in this research include the Use Case diagram, which shows the interactions between users and the system; the Activity diagram, which explains the flow of actions and processes; and the Sequence diagram, which illustrates the order of interactions among system components over time.

A. Design Tools

The framework was developed using Microsoft Visio 2022. It illustrates the relationships among the key entities within the proposed system. Microsoft Visio was used to visually represent the interactions between system actors and to outline the system's prototypes and operational flow.

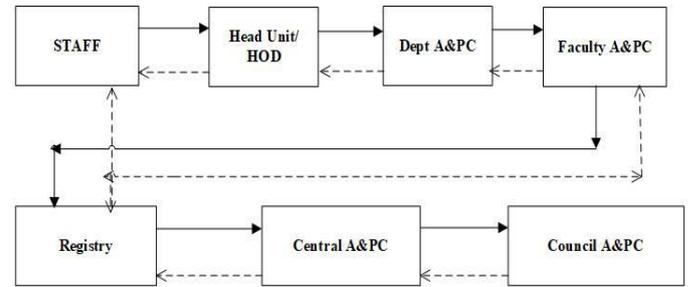
IV. RESULTS AND DISCUSSION

A. Model of the Assessment System

Unified Modeling Language (UML) was employed to

model the appraisal procedures of the Federal University of Kashere (FUK), Gombe State. The use of UML made the system processes easier to understand by presenting the assessment procedures in a clear visual format. The UML tools applied in this study include the use case diagram, which illustrates user interactions with the system; the sequence diagram, which shows the order of system interactions; and the activity diagram, which depicts the flow of appraisal activities.

B. Assessment Model



V. DISCUSSION

The diagram 4.1.1 is an assessment Model provided to illustrate the **staff appraisal and promotion process flow** in a typical **Nigerian university system**, involving various stakeholders Let's analyze each component and the flow of interaction in detail:

A. STAFF

The process starts with **staff** (academic or non-academic) who seek appraisal for purposes such as **promotion, confirmation, or review**.

They fill and submit APER form attached with their (CVs, publications, teaching evaluations, etc.) to the **Head of Unit/HOD**.

B. Head of Unit / HOD (Head of Department)

Reviews the staff's submission for completeness and accuracy.

May provide comments or initial recommendations based on performance indicators (teaching, research, community service).

Forwards the submission to the **Departmental Appointments and Promotions Committee (Dept A&PC)**.

Feedback Loop: HOD can return files to the staff if issues need to be addressed.

C. Departmental A&PC

Conducts a departmental-level evaluation.

May involve **peer reviews**, checking research quality, teaching records, and contributions.

Recommends either to approve or decline the case.

D. Sends the file to the Faculty A&PC.

E. Faculty A&PC

Broadens the review, possibly adding external assessments (especially for senior positions).

Evaluates based on both department recommendation and its own criteria.

Approves or rejects and forwards it to the **Registry** or back if necessary.

Feedback Loop: May return to Dept A&PC for clarifications or corrections.

F. Registry

Administrative unit responsible for documentation, and compliance checks.

Ensures the file is complete and policy-compliant before forwarding it to the **Central A&PC**.

Also acts as a hub for **feedback communication**, both forward and backward (dashed lines).

G. Central A&PC

Reviews decisions from all faculties in the university.

Applies **university-wide criteria** and may request clarifications from the Registry, Faculty, or Departments.

Decides or forwards to the **Council A&PC** for final ratification (especially for professorial levels).

H. Council A&PC

Highest appraisal authority in the university system.

Ratifies final decisions on **appointments, promotions, and disciplinary matters**.

Returns outcomes to the Registry for communication and record.

1) *Dashed Arrows = Feedback/Clarification Loops*

Indicate **non-linear communication**: the possibility of queries, document returns, or requests for additional input at various stages.

Especially used by the Registry and HODs to clarify or complete staff documents.

VI. CONCLUSION

The staff appraisal workflow describes the existing hierarchical structure and decision-making process used in Nigerian universities to assess the performance and career progression of academic staff. The process involves several levels of evaluation, beginning at the departmental level and ending at the Council Appointments and Promotions Committee (A&PC). At each stage, different stakeholders are involved, including Heads of Departments (HODs), Faculty and Central A&PCs, and the Registry, which plays a key administrative role in coordinating appraisal activities. The workflow diagram also shows the feedback paths and interactions between these units, highlighting the complex and bureaucratic nature of the current appraisal system. This section examines how this structure affects the efficiency of performance evaluations, the level of transparency, and the accuracy of promotion and appraisal decisions. It also considers the suitability of the existing process and emphasizes the need for a more integrated and performance-oriented assessment model. While this study presents a UML-based conceptual model of the appraisal system, future studies should focus on developing and testing a full-scale prototype. Implementing the system using technologies such as PHP and MySQL would make it possible to assess system performance, user satisfaction, and practical usability in real-world university environments. Further research may also investigate the use of artificial

intelligence (AI) techniques to analyze staff appraisal data. AI-based analysis could support better decision-making, minimize human bias, and help predict promotion eligibility by examining historical performance records and benchmark data.

REFERENCES

- [1] M. J. B. Gardner, M. M., Hickmott, J., & Ludvik, Demonstrating student success: A practical guide to outcomes-based assessment of learning and development in student affairs. 2023.
- [2] Syafaruddin, "Advances in Human Resource Management Research Recruitment, Performance and," Adv. Hum. Resour. Manag. Researc, vol. 2, no. 3, pp. 179–190, 2024.
- [3] A. Ferreira et al., "Can Online Transparency Improve Accountability? The Case of Portuguese Private Social Solidarity Institutions," Sustain., vol. 14, no. 3, pp. 1–22, 2022, doi: 10.3390/su14031632.
- [4] I. S. Leonova, E. V. Pesennikova-Sechenov, N. M. Legky, V. I. Prasolov, I. A. Krutskikh, and M. Zayed, "Strategic Analysis of the Motivation on Employees' Productivity: a Compensation Benefits, Training and Development Perspective," Acad. Strateg. Manag. J., vol. 20, no. SpecialIssue 5, pp. 1–11, 2021.
- [5] E. R. Mduma and D. G. Mkulu, "Influence of Teachers' Professional Development Practices on Job Performance in Public Secondary Schools : A Case of Nyamagana District, Mwanza - Tanzania," Int. J. English Lit. Soc. Sci., vol. 6, no. 1, pp. 215–230, 2021, doi: 10.22161/ijels.
- [6] A. Osman, V. Opoku, and A. Kyeraa, "The Impact of Performance Appraisal Systems on Employee Motivation and Organizational Success: A Comprehensive Review of Best Practices and Challenges," Converg. Chronicles, vol. 5, no. 5, pp. 83–92, 2024, [Online]. Available: <http://creativecommons.org/licenses/by/4.0/>.
- [7] I. Nyoman, T. Sutaguna, M. Yusuf, R. Ardianto, and P. Wartono, "Asian Journal of Management Entrepreneurship and Social Science The Effect Of Competence, Work Experience, Work Environment, And Work Discipline On Employee Performance," J. Manag. Entrep. Soc. Sci., vol. 03, no. 01, pp. 367–381, 2023, [Online]. Available: <https://ajmes.com/index.php/ajmes>.
- [8] A. Tarigan, A. Gustomo, and Y. R. Bangun, "Enhancing Fairness in Performance Appraisals : A Conceptual Framework Through a Systematic Literature Review," J. Adv. Humanit. Res., vol. 2, no. 3, 2023.
- [9] D. K. Rehmani, D. S. Ahmed, D. M. Rafique, and D. A. Ishaque, "From validation to execution: Exploring the practical implementation of the conjoint framework of Quality Management and High-Performance Work Systems," Heliyon, vol. 9, no. 6, p. e16718, 2023, doi: 10.1016/j.heliyon.2023.e16718.
- [10] Michael Galanakis and Giannis Peramatzis, "Herzberg's Motivation Theory in Workplace," J. Psychol. Res., vol. 12, no. 12, pp. 971–978, 2022, doi: 10.17265/2159-5542/2022.12.009.
- [11] C. Ray, "Internal Mobility: A Review and Agenda for Future Research," J. Manage., vol. 50, no. 1, pp. 264–306, 2024, doi: 10.1177/01492063231180826.
- [12] Y. K. Dwivedi, N. P. Rana, A. Jeyaraj, M. Clement, and M. D. Williams, "Re-examining the Unified Theory of Acceptance and Use of Technology (UTAUT): Towards a Revised Theoretical Model," Inf. Syst. Front., vol. 21, no. 3, pp. 719–734, 2019, doi: 10.1007/s10796-017-9774-y.
- [13] J. Emadi, "The Development of a Design Theory for Web Based Information Systems," J. Robot. Spectr., vol. 1, pp. 13–23, 2023, doi: 10.53759/9852/jrs202301002.
- [14] F. Möller, T. Schoormann, G. Strobel, M. Rotvit, and P. Hansen, "Association for Information Systems Association for Information Systems Unveiling the Cloak: Kernel Theory Use in Design Science Unveiling the Cloak: Kernel Theory Use in Design Science Research Research," Forty-Third Int. Conf. Inf. Syst. Copenhagen, pp. 0–17, 2022, [Online]. Available: <https://aisel.aisnet.org/icis2022>.
- [15] A. Conrardy and J. Cabot, "From image to UML: First results of image-based UML diagram generation using LLMs," CEUR Workshop Proc., vol. 3727, pp. 55–65, 2024.