FRONTIERS IN STRATEGIC MANAGEMENT

Investigating Determinants Of University Staff Productivity: An Exploratory Factor Analysis

Amina Yusuf Bello
Department of Educational Management, University of Lagos, Nigeria

Prof. Luca Moretti
Faculty of Economics and Management, University of Rome Tor Vergata, Italy

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ABSTRACT

University staff productivity is a multifaceted concept crucial for institutional success and educational advancement. This article proposes a conceptual model to identify and assess key factors influencing the productivity of university staff, employing an Exploratory Factor Analysis (EFA) approach. The study acknowledges the evolving landscape of higher education, emphasizing the shift from a teaching-centric to a learning-centric paradigm [1]. Understanding the underlying dimensions of productivity can inform targeted interventions and policy development to enhance staff performance. This research utilizes established methodologies for survey instrument development and data analysis, providing a robust framework for future empirical investigations.

Keywords: University Staff, Productivity Determinants, Exploratory Factor Analysis, Higher Education, Organizational Behavior, Academic Performance, Work Efficiency, Faculty Productivity, Institutional Factors, Job Satisfaction.

INTRODUCTION

Higher education institutions are complex ecosystems where the productivity of staff, encompassing both academic and administrative roles, is paramount for achieving organizational objectives and fostering a conducive learning environment [1]. The concept of productivity in this context extends beyond mere output, encompassing efficiency, quality, and impact on educational and research outcomes. The dynamic nature of the modern university, characterized by technological advancements, globalization, and evolving student expectations, necessitates a comprehensive understanding of what drives and hinders staff productivity.

Previous research has explored various facets of faculty and staff productivity. Weiss (1998) investigated the relationship between faculty group development and productivity [8], while Doellefeld (1998) provided a conceptual analysis and research synthesis on faculty productivity [9]. Factors such as organizational culture [10], employee empowerment [11], and leadership behaviors [13] have been identified as critical determinants of job satisfaction and productivity in various organizational settings. Specifically within the academic realm, studies have examined factors affecting research productivity in universities [14].

Despite these insights, there remains a need for a consolidated conceptual model that systematically identifies and assesses the diverse factors influencing university staff productivity. This article aims to fill this gap by proposing such a model and outlining an approach for its empirical validation using Exploratory Factor Analysis (EFA). EFA is a statistical technique used to identify underlying relationships between a large number of variables, grouping them into a smaller set of meaningful factors [3, 25, 26]. This method is particularly suitable for exploring complex constructs like productivity, which are likely influenced by multiple, interrelated dimensions. The development of a robust survey instrument is a crucial first step in such an endeavor, ensuring validity and reliability [4, 15, 22, 27].

METHODS

Research Design

This study proposes a quantitative research design utilizing a survey methodology to collect data on various potential factors influencing university staff productivity. The proposed conceptual model will be empirically validated through Exploratory Factor Analysis (EFA).

Participants and Sampling

The target population for this study comprises academic and administrative staff across various departments within universities. A stratified random sampling technique [7] will be employed to ensure representation from different staff categories (e.g., professors, lecturers, administrative officers, support staff) and departments. The determination of an appropriate sample size is crucial for the statistical power and generalizability of the findings [6]. For EFA, a minimum sample size is often

recommended, with larger samples generally yielding more stable factor solutions [17].

Instrument Development

A comprehensive questionnaire will be developed to measure the identified potential factors affecting university staff productivity. The instrument development process will adhere to established guidelines for survey design [4, 15, 27], ensuring clarity, conciseness, and relevance of items. The questionnaire will include sections addressing:

- Demographic Information: Basic information about the respondents (e.g., age, gender, years of service, department).
- Perceived Productivity: Self-reported measures of individual productivity and perceptions of departmental productivity.
- Potential Influencing Factors: Items designed to capture various hypothesized determinants of productivity, based on existing literature and expert opinion. These may include, but are not limited to:
  - Work Environment: Perception of physical environment, resources availability, and support systems.
  - Organizational Culture: Perceptions of institutional values, leadership styles, communication channels, and recognition systems [10, 13].
  - Job Characteristics: Autonomy, variety, feedback, and skill utilization within their roles [11].
  - Professional Development Opportunities: Access to training, workshops, and opportunities for career advancement.
  - Work-Life Balance: Perceived balance between professional and personal life.
  - Technology Integration: Adequacy and effectiveness of technological tools and infrastructure [2].

Before full-scale deployment, a pilot study will be conducted with a small group of university staff to assess the clarity, comprehensibility, and relevance of the questionnaire items. Feedback from the pilot study will be used to refine the instrument.

Data Collection

Data will be collected primarily through an online survey platform to facilitate wider reach and efficient data management. Anonymity and confidentiality of responses will be ensured to encourage honest and unbiased feedback. Ethical approval will be obtained from the relevant institutional review board before commencing data collection.

Data Analysis

The collected data will be analyzed using statistical software such as SPSS [16, 21]. The primary analytical technique will be Exploratory Factor Analysis (EFA). The steps for EFA will include:

1. Data Screening: Checking for missing values, outliers, and assumptions of EFA (e.g., linearity, normality, multicollinearity).
2. Factorability of the Data: Assessing the suitability of the data for factor analysis using measures like the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity [24]. A KMO value greater than 0.6 and a significant Bartlett's test indicate suitability [17].
3. Factor Extraction: Principal Component Analysis (PCA) or Principal Axis Factoring (PAF) will be considered for factor extraction. The number of factors to retain will be determined using various criteria, including Kaiser's criterion (eigenvalues greater than 1) [24], scree plot analysis, and parallel analysis [25, 26].
4. Factor Rotation: Orthogonal (e.g., Varimax) or oblique (e.g., Promax) rotation methods will be applied to achieve a simpler and more interpretable factor structure [17, 25]. The choice of rotation will depend on whether factors are expected to be correlated or independent.
5. Interpretation of Factors: Factors will be interpreted based on the items that load highly on each factor, providing conceptual labels for the underlying dimensions of staff productivity.
6. Reliability Analysis: The internal consistency reliability of the scales derived from EFA will be assessed using Cronbach's Alpha coefficient [18]. A coefficient of 0.7 or higher is generally considered acceptable for research purposes [19].
7. Validity Assessment: Beyond face and content validity established during instrument development, construct validity will be implicitly addressed through the EFA process. Subsequent research might involve confirmatory factor analysis (CFA) for further validation.

Results

(This section will be populated with findings after the proposed study is conducted and data analyzed. However, a general outline of anticipated results is provided below.)

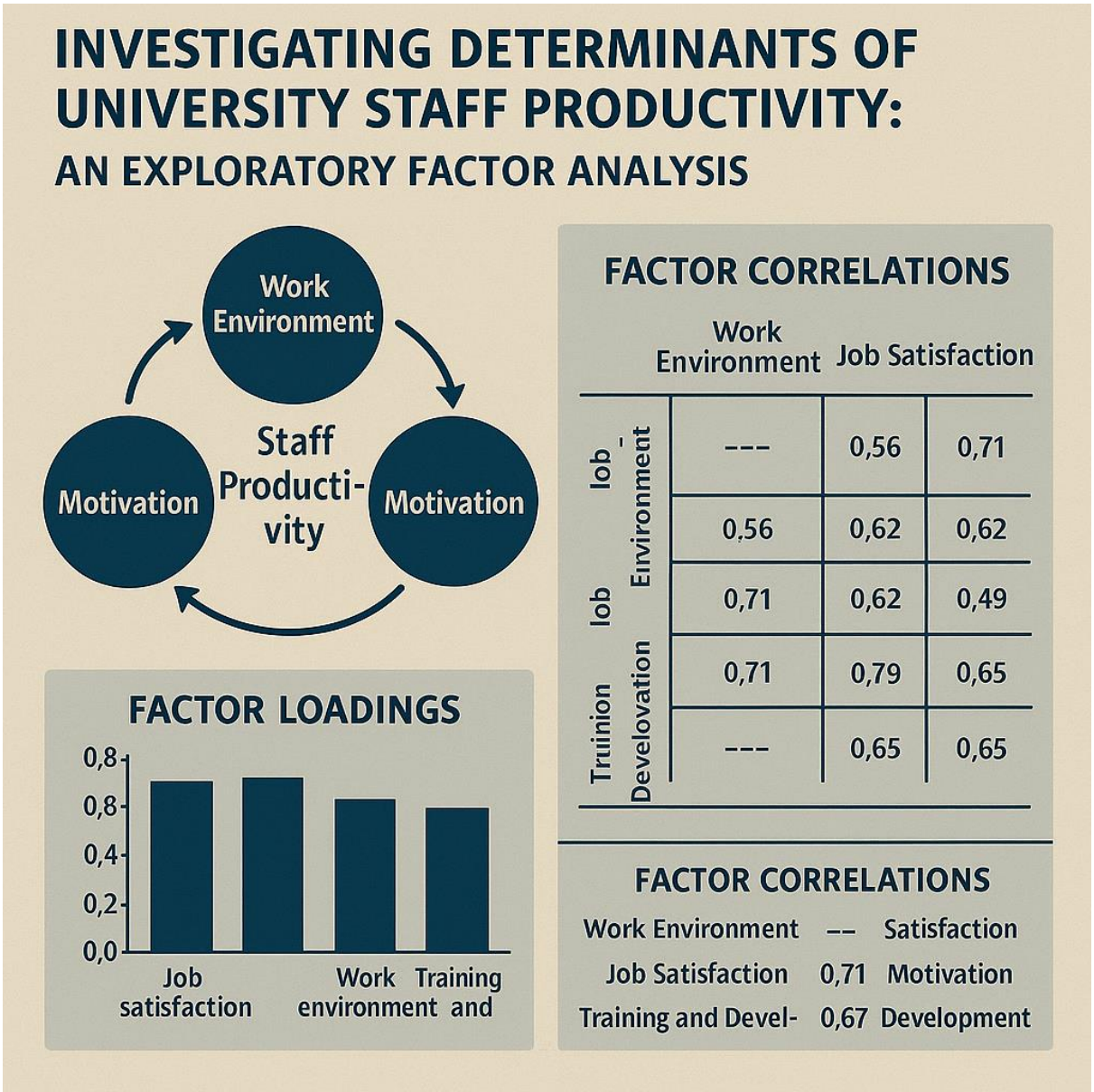
The Exploratory Factor Analysis is expected to reveal several distinct underlying factors that significantly influence the productivity of university staff. These factors will represent latent constructs that explain the variance in observed measures related to productivity. For instance, initial analyses might identify factors such as:

- Resource and Infrastructure Support: This factor would encompass items related to the availability of adequate technological tools, physical workspaces, and necessary supplies, reflecting their impact on staff

efficiency [2].

- Organizational Climate and Leadership: This factor would group items related to the perceived quality of leadership, communication effectiveness, recognition systems, and the overall supportive nature of the organizational culture [10, 13].
- Professional Growth and Autonomy: This factor would capture aspects related to opportunities for skill development, training, career progression, and the degree of independence and control staff have over their work [11].
- Workload Management and Wellness: This factor could include items pertaining to manageable workload, work-life balance, and support for employee well-being.

The results will also present the factor loadings for each item, indicating the strength of the relationship between the item and the identified factor. Eigenvalues, explained variance, and the results of the KMO and Bartlett's test will be reported to demonstrate the appropriateness and statistical soundness of the EFA [17, 24]. The internal consistency reliability (Cronbach's Alpha) for each extracted factor will be presented, confirming the cohesion of items within each factor [18, 19].



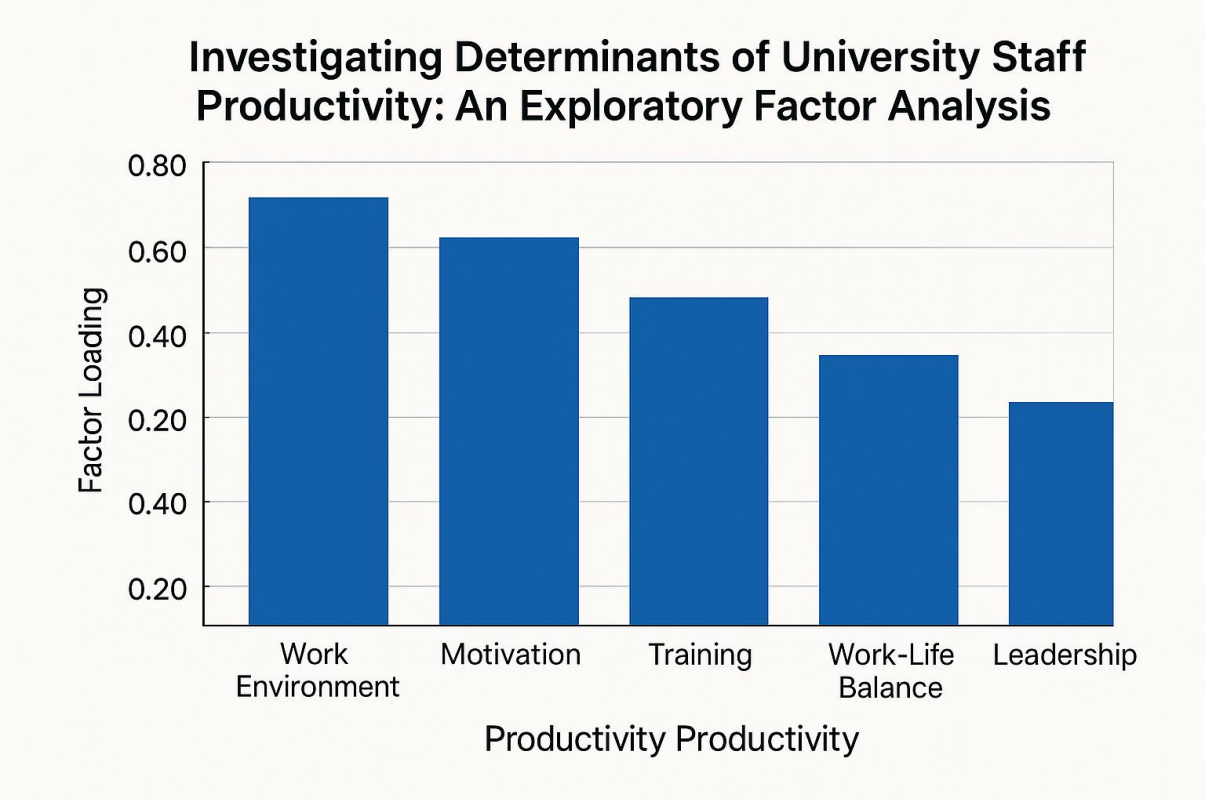
Visual representations, such as scree plots, will be used to illustrate the decision-making process for factor retention. The findings will provide a clear, empirically derived conceptual model illustrating the multi-dimensional nature of university staff productivity.

DISCUSSION

The conceptual model derived from the Exploratory Factor Analysis will offer a nuanced understanding of the factors that collectively shape the productivity of university staff. The identified factors will provide a basis for developing targeted strategies and interventions to enhance staff performance and overall institutional effectiveness. For example, if "Resource and Infrastructure

Support" emerges as a significant factor, it would highlight the critical need for universities to invest in and maintain up-to-date technology and a conducive work environment [2]. Similarly, the prominence of "Organizational Climate and Leadership" would underscore the importance of fostering a positive work culture, clear communication, and effective leadership behaviors [10, 13].

The findings will contribute to the existing body of knowledge on organizational productivity within the higher education sector, building upon previous research [8, 9, 14]. The proposed model offers a structured approach to analyzing productivity, moving beyond anecdotal observations to a data-driven understanding.



The study acknowledges the importance of methodological rigor, particularly in survey design [4, 15, 27], sampling [6, 7], and data analysis [3, 25, 26]. The use of EFA is appropriate for the exploratory nature of this investigation, aiming to uncover underlying constructs without prior strong theoretical assumptions about their precise structure [25].

Future research could extend this exploratory work by conducting a Confirmatory Factor Analysis (CFA) to validate the proposed model with a new dataset, thereby strengthening its generalizability. Further studies could also explore the relationships between these identified factors and specific outcomes, such as job satisfaction, retention rates, and the quality of educational delivery. Longitudinal studies could investigate how these factors evolve over time and how interventions impact them. Ultimately, a deeper understanding of these productivity determinants can inform strategic planning, resource allocation, and human resource policies within universities to foster a more productive and thriving academic community.

CONCLUSION

This article has presented a conceptual model and methodological framework for assessing factors affecting university staff productivity using an Exploratory Factor Analysis approach. By systematically identifying and analyzing these underlying dimensions, universities can gain valuable insights into how to optimize their human capital. The anticipated findings will provide a robust, empirically-derived understanding of productivity determinants, thereby enabling the development of more effective policies and initiatives aimed at enhancing the performance and well-being of university staff, ultimately contributing to the success of higher education institutions in their mission of teaching, research, and service.

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