

DATA MANAGEMENT PRACTICES IN SECONDARY SCHOOL EDUCATION PLANNING AND ADMINISTRATION IN NIGERIA: ISSUES AND PROSPECTS

BY

EDEKI Oghomwen Mine, PhD

Department of Educational Management
Faculty of Education, University of Benin, Benin City
Phone No: 09032676798
E-mail: Oghomwen.agbonaye@uniben.edu

&

IDEHEN Kate Ogheneruna, PhD

Department of Educational Management,
Faculty of Education, University of Benin, Benin City.
Phone No: 08036996470
Email: idehenmichael20@gmail.com

Abstract

This paper aims to discuss the concept of data in education, data management practices in planning and administration of secondary school in Nigeria, uses of data management practices to easy planning and administrative function in secondary school in Nigeria, Issues in data management practices in planning and administration of secondary schools in Nigeria Prospects of data management practices in planning and administration of secondary school education in Nigeria. The paper concluded that efficient and effective data management practices will enable educational planners and administrators identify areas for improvement, tailor instruction, allocate resources efficiently, and promote equitable educational opportunities, ultimately leading to enhanced student outcomes and successful planning and administration. This paper suggested among others that government should establish clear data management policies and guidelines that outline standards for data collection, storage, security, access, and utilization.

Keywords: data management practices, planning and administration

Introduction

Data management practices refers to the procedures and strategies used by educational institutions to effectively handle, store, protect, and use their data assets. These practices ensure that data is organized, exact, accessible, and protected, thereby enabling schools to make informed decisions and get value from their data. Data plays a crucial role in school planning and administration as it provides valuable information and insights that can improve decision-making processes and overall educational outcomes. In Nigeria, Secondary schools collect and store vast amounts of data, including student records, attendance, grades, and disciplinary actions. There seems to be lack of efficient data management practices or outdated methods, leading to difficulties in accessing, organizing, and analyzing the data. This could hinder decision-making processes and the overall effectiveness of the school planning and administration in Nigeria. This paper therefore discusses data management practices in secondary school education in Nigeria under the following sub heading;

- Concept of Data in Education
- Data Management Practices in Education
- Planning and Administration of Secondary School in Nigeria
- Using Data Management Practices to Easy Planning and Administrative functions in Secondary School in Nigeria
- The Prevailing Data Management Practices in Secondary Schools in Nigeria
- Issues in Data Management Practices in Planning and Administration of Secondary Schools in Nigeria
- Prospects of Data Management Practices in Planning and Administration of Secondary School Education in Nigeria
- Conclusion

Concept of Data in Education

Data is a collection of facts, statistics, or information that can be in various forms, such as numbers, text, images, audio, or video. According to (UNESCO, 2018) data represent facts, concepts or instructions in a formalized manner suitable for communication, interpretation, or processing by humans or by automatic means. It can be both raw and processed, and it is typically used as input for analysis, decision-making, and various applications. Owan and Bassey (2019), asserted that when data are collected, processed through analysis and interpretation, they become information. Data can be quantitative or qualitative and comprises photos, objects or audio files, resulting from different sources. As explained by (Kabir, 2016), data sources are either primary or secondary. Primary data source includes; experiments, survey, questionnaire and interview. The sources of secondary data include; books, records, biographies, newspapers, published censuses or other statistical data, data archives, internet articles. Journals and databases (Kabir, 2016).

Data has become increasingly valuable in planning and administration of education at all levels. The insights gained from data analysis can be used for various purposes, such as improving school operations, making informed decisions, and understanding student behaviour. According to Abdullahi, Abiola and Abdulwahab (2016), the reason institutions ensure data management practice is to control the creation and growth of data asset, reduce operation cost and improve efficiency and productivity. It is essential to handle data responsibly and consider ethical and privacy implications.

Data Management Practices in Education

Data management in education encompasses the establishment of policies and processes to ensure data quality, integrity, and compliance. This includes defining data ownership, standards, and usage guidelines (Ezeagu, 2013). The practice focuses on maintaining data accuracy, consistency, completeness, and validity through activities like data cleansing and profiling. Data integration involves merging data from various sources using techniques like ETL, data replication, and data virtualization (Regodon, 2017). This facilitates efficient data sharing and analysis. Considerations for data storage and infrastructure include scalability, security, performance, and cost optimization, with options ranging from on-premises servers to cloud storage (Ereh and Okon, 2015).

Data security and privacy practices are crucial in protecting data from unauthorized access, breaches, or loss. This involves implementing access controls, user authentication, and regular security audits (Pradal et al., 2017). Additionally, physical security, network security, and safeguarding computer systems and files are essential considerations. Data Lifecycle Management involves managing data from creation or acquisition to archiving or deletion, with a focus on data classification, retention policies, archiving, and disposal processes (Owan and Bassey, 2019). Master Data Management focuses on creating and managing a central, authoritative source of critical data, ensuring consistency and reliability across the organization through activities like data consolidation and deduplication.

Data analytics and school intelligence practices involve leveraging data for insights and informed decision-making. This includes techniques like data modeling, mining, reporting, visualization, and predictive analytics (Ezeagu, 2013). Data documentation and metadata management practices ensure accurate descriptions and classifications of data, enhancing discoverability and facilitating data governance. Data compliance and ethics in schools require adherence to legal, regulatory, and ethical guidelines for data management (Osakwe, 2011). This includes compliance with data protection laws, industry standards, and ethical guidelines for data collection, storage, and usage. By implementing these practices, schools can effectively manage their data, utilize it as a strategic asset, and gain valuable insights for decision-making and operational efficiency.

Planning and Administration of Secondary Schools in Nigeria

Secondary school planning and administration in Nigeria involves various aspects of organizing and managing secondary education institutions in the country. According to FRN, (2014) in the National policy on Education, Secondary education in Nigeria typically consists of three years of junior secondary school (JSS) and three years of senior secondary school (SSS). The curriculum covers a wide range of subjects, including sciences, arts, social sciences, and vocational subjects. The Federal Ministry of Education and State Ministries of Education have the responsibility for overseeing secondary education in Nigeria. The National Examinations Council (NECO) and the West African Examinations Council (WAEC) conduct national examinations for students at the end of their secondary education FRN, (2014).

Planning and administration of secondary school education in Nigeria involves determining the number of schools needed, their location, infrastructure requirements, and other resources. This includes ensuring that there are enough schools to accommodate the student population and providing facilities such as classrooms, laboratories, libraries, and administrative offices. School administrators play a crucial role in managing secondary schools in Nigeria which involves coordinating the day-to-day operations, overseeing the academic curriculum, managing staff, ensuring discipline, and maintaining a safe and conducive learning environment. The School administrator may also employ non-teaching staff members, such as administrative personnel, librarians, and laboratory technicians. Secondary schools in Nigeria receive funding from different sources, including government allocations, fees paid by students, and donations from private individuals or organizations which is managed by school Administrator.

Using Data Management Practices to Easy Planning Functions in Secondary School in Nigeria

1. **Student Records Management:** Data management practice ensures that basic information on students are collected for proper management (Iwu and Oike, 2009). Secondary schools maintain comprehensive student records that include personal information, academic performance, attendance records, and disciplinary history. This practice ensures accurate and up-to-date information for monitoring student progress and providing necessary support.
2. **Assessment Data Collection and Analysis:** Schools collect data from various assessments, examinations, and tests to assess student learning and identify areas of improvement. Data analysis helps teachers and administrators understand student performance trends, identify strengths and weaknesses, and design targeted interventions.
3. **Enrolment and Demographic Data Management:** Schools manage data related to student enrolment, demographic information, and class size. This data helps in determining resource allocation, planning for infrastructure needs, and addressing the specific requirements of different student populations. Ofoegbu (2021), stated that data management practices play an important role in improving the adaptation and collection of student's data in the school system. Student data are made available to school personnel for administration.

4. **Staff Data Management:** Data management practices extend to staff records, including information on teachers, administrators, and support staff. This data ensures proper staffing, payroll management, and tracking professional development and certifications. Patel (2016), posited that data management practice could help in staff administration through the processing of voluminous records in a quick, thorough and efficient manner so as to make data retrieval easier.
5. **Curriculum and Timetable Management:** Data is utilized to manage the curriculum and timetable. This includes mapping out subjects, courses, and lesson plans, as well as scheduling classes, exams, and extracurricular activities. Proper data management ensures efficient organization and delivery of educational content.
6. **Finance and Resource Management:** Data management is crucial for financial and resource management in schools. This includes tracking budgets, expenses, procurement, and inventory management. Accurate financial data helps administrators make informed decisions regarding resource allocation and planning.
7. **Education Management Information Systems (EMIS):** Some secondary schools in Nigeria implement EMIS, which is a comprehensive data management system for educational institutions. Owan and Bassey (2019) submitted that EMIS facilitates data collection, storage, analysis, and reporting at various levels, enabling educational administrators to make evidence-based decisions.
8. **Data-Driven Decision Making:** Emphasizing data-driven decision-making in secondary schools enables administrators and teachers to use data effectively to identify areas of improvement, monitor progress, and implement evidence-based strategies to enhance teaching and learning outcomes.

The Prevailing Data Management Practices in Secondary Schools in Nigeria

Many Nigerian secondary schools rely on manual methods for data collection, storage, and management (Owan & Bassey, 2018). This includes the use of paper-based attendance registers, grade books, and other administrative documents. While some schools have begun to incorporate technology into data management, the adoption rate remains relatively low. Challenges with data accuracy, due to the manual nature of record-keeping, there can be issues with data accuracy, errors may occur during data entry or transcription, which can lead to inaccurate information. According to (Okon and Essien, 2014) inadequate training and capacity building is still a challenge, many planners and administrators may not have received formal training in data management practices. This can hinder their ability to effectively collect, organize, and analyze data. Challenges in data accessibility, retrieving specific data can be time-consuming, especially if records are not organized or if there is no systematic approach to data retrieval.

Minimal data analysis and utilization are wide spread, while data may be collected, its full potential for informing decision-making and improving educational outcomes is often not realized. There may be limited capacity for data analysis and interpretation. Lack of standardization in data management practices can vary widely between different schools and states, this can make it challenging to aggregate and compare data across secondary education system. Odigwe, Bassey and Owan (2020) argued that decisions (whether statistical or otherwise) are made based on evidences that are provided after data collection and analysis. Limited integration of data with educational planning may be obvious in secondary school system, data may not be fully integrated into the educational planning and decision-making processes.

Issues in Data Management Practices in Secondary Schools in Nigeria

1. **Lack of efficient data management system:** Many secondary schools still rely on manual data

management processes, such as paper-based records and manual entry into spreadsheets. This can lead to challenges in data accuracy, retrieval, and analysis. The adoption of digital tools and systems can enhance data management efficiency. Secondary schools collect and store vast amounts of data, including student records, attendance, grades, and disciplinary actions. The lack of efficient data management systems or outdated methods, leading to difficulties in accessing, organizing, and analyzing the data. This can hinder decision-making processes and the overall effectiveness of the school administration.

2. **Inadequate data Infrastructure and Technology:** Many secondary schools in Nigeria face challenges in terms of data infrastructure and technology. Limited access to reliable internet, outdated computer systems, and insufficient software hinder efficient data management processes (Obiweluzor and Eshemigie, 2022). Investments in data infrastructure and technology are necessary to support effective data management
3. **Issues of Staff Capacity and Training:** There is a need to enhance the capacity of school staff in data management practices. Ibadin (2001) found out that most school administrators, academics and non-academic staff are not ICT compliant and there is shortage of well-trained ICT handlers (Ibadin, 2001). Training programs and professional development opportunities can equip educators and administrators with the skills and knowledge required for effective data collection, analysis, and utilization.
4. **Lack of Integration of Data Management Systems:** Some secondary schools in Nigeria lack integrated data management systems, resulting in fragmented data storage and difficulty in data retrieval. Implementing Education Management Information Systems (EMIS) or similar solutions would streamline data management processes and improve data accessibility and accuracy
5. **Inadequate data privacy and security:** Secondary schools handle sensitive student information, and ensuring data privacy and security is crucial. However, many schools may face challenges in safeguarding data against unauthorized access, breaches, or misuse. Inadequate data protection measures can lead to privacy violations, identity theft, or reputational damage for the school.
6. **Issues of data quality and accuracy:** Accurate and reliable data is essential for making informed decisions and evaluating student performance. In some instances, many secondary schools struggle with data quality issues, such as incomplete or inconsistent records, errors in data entry, or outdated information. Poor data quality can lead to inaccurate assessments, unreliable statistics, and ineffective educational planning.
7. **Issues of data-driven decision-making:** Utilizing data effectively for decision-making is an ongoing challenge for many secondary schools. School administrators and educators may lack the necessary skills or tools to interpret and analyze the available data. This can hinder efforts to identify areas for improvement, track student progress, or develop targeted interventions to support struggling students.

Prospects of Data Management Practices in Secondary School Education Planning and Administration in Nigeria

To enhance data management practices in Nigeria's secondary education sector, the following suggestions were made:

1. **Develop Data Management Policies:** Establish clear data management policies and guidelines that outline standards for data collection, storage, security, access, and utilization. These policies should address data privacy, data governance, data quality, and compliance with relevant regulations.
2. **Invest in Data Infrastructure and Technology:** Allocate resources for upgrading data infrastructure, including reliable internet connectivity, modern computer systems, and data management software. Implementing Education Management Information Systems (EMIS) or similar platforms can streamline data management processes.

3. **Provide Training and Capacity Building:** Offer training programs and workshops to teachers, administrators, and staff on data management best practices. This should include data collection methods, data analysis techniques, data security measures, and using data for decision making. Continuous professional development will improve data literacy among education professionals.
4. **Enhance Data Security and Privacy Measures:** Strengthen data security protocols, including secure data storage, user access controls, encryption, and regular data backups. Educate staff on data privacy regulations and establish procedures to handle sensitive student and staff information appropriately.
5. **Promote Data-Driven Decision Making:** Create a culture of data-driven decision making within secondary schools by encouraging administrators and educators to utilize data for informed decision making. Provide access to data analysis tools and dashboards that facilitate data visualization and interpretation for actionable insights.
6. **Regular Data Quality Assurance:** Implement processes for regular data quality checks and validation to ensure accuracy, consistency, and completeness of data. This can include data audits, data cleansing procedures, and data validation routines.
7. **Monitor and Evaluate Data Management Practices:** Regularly assess the effectiveness of data management practices within schools. Conduct internal audits, collect feedback from staff and stakeholders, and measure the impact of data-driven decision making on student outcomes. Use these insights to identify areas for improvement and refine data management strategies.

Conclusion

Investing in data infrastructure, providing training opportunities, enhancing data security measures, promoting data-driven decision-making, and improving data reporting and communication will contribute to more efficient and impactful data management practices. Efficient and effective management practices will enable educational planners and administrators identify areas for improvement, tailor instruction, allocate resources efficiently, and promote equitable educational opportunities, ultimately leading to enhanced student outcomes and successful planning and administration.

Suggestions

- Government should establish clear data management policies and guidelines that outline standards for data collection, storage, security, access, and utilization
- Secondary school management should allocate resources for upgrading data infrastructure, including reliable internet connectivity, modern computer systems, and data management software.
- There should be training programs and workshops for teachers, administrators, and staff on data management best practices.
- Strengthen data security protocols, including secure data storage, user access controls, encryption, and regular data backups.
- Ministry of Education should create a culture of data-driven decision making within secondary schools by encouraging administrators and educators to utilize data for informed decision making.
- Implementation of processes for regular data quality checks and validation to ensure accuracy, consistency, and completeness of data.
- Regularly assess the effectiveness of data management practices within schools.

References

- Abdullah, A.B., Abiola, A.A., & Abdulwahab, O.I. (2016). An assessment of records management practice in selected Local Government Councils in Ogun State, Nigeria. *Journal of Information Science Theory and Practice*, 4(1), 49-64.
- Ezeagu, M.N. (2013). Data management practices of Secondary School Administrators in Nsukka Education Zone of Enugu State. *M.Ed. Thesis Submitted to Department of Educational Foundations, University of Nigeria, Nsukka*.
- Ereh, C.E., & Okon, N.N. (2015). Keeping of teachers' record and principals' administrative effectiveness in Akwa -Ibom State Secondary Schools, Nigeria. *International Journal of Education, Learning and Development*, 4(1), 40-44.
- Federal Republic of Nigeria. (2014). *National Policy on Education (6th Edition)*. Yaba, Lagos: NERC Press.
- Iwu, A., & Oike, G.A. (2009). Information and communication technology and programmed instruction for the attainment of educational goal in Nigeria's Secondary Schools. *Journal of the Nigeria Association for Education Media and Technology*, 3(2), 21-35.
- Ibadin, V.O. (2001). Computer in educational planning administration. In N.A. Nwagwu, E.I. Ehiamezor, M.A. Ogunu, & M. Nwadiani (Eds.), *Current Issues in Educational Management in Nigeria*. NAEP Publications, Benin City.
- Kabir, S.M.S. (2016). Method of data collection basic guidelines for research: An introductory approach for all disciplines (pp. 201-275). *Book Zone Publication, Chittagong-4203, Bangladesh*.
- Owan, V.J., & Bassey, B.A. (2018). Comparative study of manual and computerized software techniques of data management and analysis in educational research. *International Journal of Innovation in Educational Management (IJIEM)*, 2(1), 35-46.
- Owan, V.J., & Bassey, B.A. (2019). Data management practices in educational research. In N.P. Ololube & G.U. Nwiyi (Eds.), *Encyclopedia of Institutional Leadership, Policy, and Management: A Handbook of Research in Honour of Professor Ozo-MekuriNdimele (Vol 2, pp. 1251-1265)*. Pearl Publishers International Ltd.
- Patel, D. (2016). Research data management: A conceptual framework. *Library Review*, 65(4/5), 226-241.
- Obiweluozor, N., & Eshemigie, K. (2022). Factors affecting the use of information and communication technology among University Administrators in Nigeria. *Journal of Faculty of Education*, 20(1), 31-37.
- Odigwe, F.R., Bassey, B.A., & Owan, V.J. (2020). Data management practices and educational research effectiveness of University Lecturers in South-South Nigeria. *Journal of Educational and Social Research*, 10(3), 24-34.
- Ofoegbu, F.I. (2021). Education system analysis. In M. Nwadiani, J.K. Adeyemi, B.O. Ogonor, V.O. Igbineweka, & H.O. Alonge (Eds.), *Educational Management Digest*. Department of Educational Management, University of Benin. Ambik Press, Nigeria.
- Okon, O.E., & Essien, M.I. (2014). School-based data and management of technological innovations in public Secondary Schools in Cross River State. *Global Journal of Educational Research*, 13(1), 73-79.
- Osakwe, N.R. (2011). Management of school records by Secondary School Principals in Delta State, Nigeria. *Journal of The Social Sciences*, 6(1), 40-44.
- Regodon, C.S. (2017). Records management practices in the Polytechnic, University of Philippines: Basis for proposed record management guidelines. *Asia Journal of Multidisciplinary Research*, 1(2), 14-20.
- UNESCO. (2018). *Global perspectives on teacher learning, improving policy and practice: Fundamentals of educational planning*. France, Paris: UNESCO/ILEP.

EFFECT OF OCCUPATIONAL STRESS ON JOB SATISFACTION AMONG MATHEMATICS LECTURERS IN KEBBI STATE HIGHER INSTITUTIONS OF LEARNING

By

**Muhammad Sani Abdurrahman, Aliyu Bayero,
Munir Sayyadi Yusuf, Ibrahim Musa Garba**

Department of Mathematics
Waziri Umaru Federal Polytechnic Birnin Kebbi
abdurrahman@wufpbk.edu.ng

Abstract

Every institution strives in developing a satisfied workforce in order to operate their well-being because the institution's success heavily depends on individual efficiency and effectiveness. When a lecturer is stressed, he or she will not be inspired to give his or her best effort since stress makes things more difficult. As a result, this study explored the effect of occupational stress on job satisfaction in mathematics by posing two research questions and developing two null hypotheses to lead the investigation. The study employed a descriptive survey design. A sample size of 80 was picked from a population of 101 mathematics lecturers in five different higher institutions of learning in Kebbi State using Krejcie and Morgan table. The data collection tools were adopted based on the occupational stress index (OSI) and job attitude scale (JAS). To compare differences and relationships between occupational stress and job satisfaction, mean, standard deviation, independent-sample t-test, and Pearson's moment correlation were used. The study found a significant difference in job satisfaction between high and low occupational stress, $t(78) = 0.613$ at < 0.05 . with a Pearson moment correlation (r) coefficient of 0.734 (2-tailed) at p-value of 0.000. According to the findings, excessive stress leads to low job satisfaction among lecturers, whereas low stress leads to good job satisfaction. Mathematics lecturers in institutions of higher learning should be provided with the required skills for successful stress management. This will assist individuals in understanding and employing adaptive stress coping mechanisms, as well as increasing job satisfaction.

Keywords: Occupational stress, job satisfaction, mathematics lecturers, institutions of higher learning

INTRODUCTION

Teaching is characterized as an action made by both instructors and students that makes learning more effective than it would otherwise be (Akingunola & Adigun, 2013), lecturers are in charge of the classroom's day-to-day operations as well as the improvement and promotion of excellent educational standards (Abdurrahman & Mukhtar, 2021). The teaching force's competency, efficacy, efficiency, and dedication determine the quality and success of every educational system worldwide (Mimura & Griffiths, 2016). The extent to which teaching goals are reached determines the effectiveness of a lesson; that is why every good teacher ensures that learning objectives are met at the end of the lesson (Muhammad, Abdullahi, Mustapha, & Sani, 2015). In view of the effects of stress that teachers are progressively confronting, the teaching profession is becoming a more difficult profession in the world (Paray, Kumar, & Awasthi, 2016). Job satisfaction is related to how one feels about one's job, and hence it is related to the extent to which employees respect their jobs.

According to Jaafar, Hassan, and Zambi (2021), job satisfaction is the consequence of a person's assessment of many aspects of employment and the workplace in which they now work. According to Baluyos, Rivera, and Baluyos (2019), lecturers' job satisfaction can have a considerable impact on their commitment to their individual schools (i.e., job satisfaction has a favourable effect on overall commitment of lecturers and school productivity).

Stress is defined by Mwakasangula and Kelvin (2020) as the body's physical and emotional reaction that frightens, frustrates, confuses, endangers, or stimulates us and places too much demands on our bodies leading to either positive or negative experiences. Stress can have an effect on both person's physical and emotional well-being. Furthermore, work stress happens in the workplace as a result of the crucial nature of the job or the likelihood of a change in work activities (Ratnawat & Jha, 2014). Stress is difficult to handle since it is always associated with an unfavourable component, such as high blood pressure, lunacy, and insanity. Firms and organizations can suffer if these things occur, particularly in terms of performance. Furthermore, an incomplete task causes lower job satisfaction and on the other hand, stress might demonstrate great dissatisfaction with a prospective job. Employers, on the other hand, benefit from stress management and increase job satisfaction. Job stress is defined as "a condition in which employees satisfy duties that exceed the person's ability, as well as the resources required to perform these duties, where there is a significant difference between rewards and demand for performing the duties" (Ragel & Rachel, 2017).

Job satisfaction is very crucial for the maintenance of organizational long-term survival. In order to boost organizational performance, job satisfaction necessitates skills, expertise, and knowledge. Profit from the organization's performance through incentives, salary, and remuneration makes employee satisfied with his job. This position demands a lot of hard work from the individual and can be stressful. Many scholars have interest in stress because of its effects on individual and organizational performance. If not adequately managed, it is one of the most harmful issues in the workplace (Yeboah-Kordee, Amponsah-Tawiah, Adu, & Ashie, 2018). Attaining high levels of performance through productivity and efficiency has long been an important priority for organizations. Employees that are stress-free and contented tend to put in more effort on the job and work harder and better. Employee attitudes are crucial to management because they influence employee behavior inside the organization. In today's global context, numerous organizations are experiencing intense challenges to increase employee work satisfaction and, as a result, organizational commitment in order to obtain a competitive advantage and retain important people (Donthu & Subramanyam, 2022). The potential benefits to individuals and organizations have generated a great deal of interest in organizational issues connected to attitude and behaviour, such as organizational commitment, job satisfaction, and job performance. According to Samad (2011), devoted and satisfied employees are less likely to demonstrate poor performance and are typically highly productive when they identify with organizational aims and values. Organizations that are successful in their sector understand that staff retention is critical to achieving market leadership and growth. How they feel about their work and the results they obtain have a direct impact on an organization's success and, eventually, its stability. Employees will be more satisfied in general if they believe they are fairly paid for the work they have done by ensuring that the reward they receive are actual contributions to the organization and compatible with the reward policies (Donthu & Subramanyam, 2022).

According to popular belief, a happy worker is a productive worker; and a staff that is satisfied will foster a nice environment within the firm, allowing it to operate successfully. As a result, job satisfaction has emerged as a key research issue which results in attaining high levels of performance through productivity and efficiency (Thakre & Barua, 2016). To do that, a highly satisfied workforce is an absolute requirement for an organization's performance growth. When a worker is satisfied with his or her employment, he or she is more likely to work harder and better. Thus, every organization aims to develop a satisfied workforce in order to operate the organization's well-being. However, the overall organizational performance depends on the efficient and

effective performance of the organization's individual personnel. As a result, every organization places a high value on individual employee performance in order to achieve high organizational productivity. When an employee is satisfied with his or her employment, he or she is driven to put in more effort to improve job performance as well as organization's overall performance (Thakre & Barua, 2016). In other words, a contented individual employee, as well as his or her efforts and devotion, are critical to the organization's success. It is against this background that this study determines the effect of occupational stress on job satisfaction among mathematics lecturers in Kebbi State higher institutions of learning.

STATEMENT OF THE PROBLEM

Tertiary institutions have a strong desire to hire and retain the best workers. In order to accomplish this purpose, annual performance evaluation has become a critical necessity for both academic and non-academic staff to reach this goal in various ways. Numerous psychological and behavioural characteristics must be considered when evaluating staff in relation to their professional and social dimensions. This evaluation technique has evolved into a superior dimension of helping and managing lecturer performance (promotion) in a competitive academic setting. This approach invariably values a lecturer's overall contributions and thus recognizes the critical relationship between performance and psychological factors such as job satisfaction, emotional intelligence, organizational citizenship behaviour, work motivation, professional integrity, and so on.

Stress is seen as any internal or external force that disrupts the physiological, psychological, and social systems. In other words, it is the psychological processes (personal qualities) that emerge as a result of how individuals interact with their environment (Akingunola & Adigun, 2013). Stress is typically caused by a range of life factors, including social and developmental changes, financial challenges, and academic responsibilities. According to Mimura and Griffiths (2016), a number of workplace factors contribute to stress, including workload, working environment, isolation from co-workers, accountability for staff, poorly defined organizational boundaries, career advancement, lack of employment security, poor relationships with co-workers and supervisors, threats and harassment, management style, as well as decision-making. These circumstances are either directly or indirectly related to stress, which causes unnecessary or premature death as a result of heart attack, stroke, high blood pressure, and a variety of other stress-related disorders.

The fact that lecture jobs are growing more stressful has recently had an impact on the level of teaching effectiveness. It appears that lecturers have been unproductive recently and are dissatisfied with their jobs for a variety of reasons related to stress, including the number of classes taught weekly by a single mathematics lecturer, the design and scoring of internal examinations, the workload, and administrative responsibilities. According to Usman and Kabir (2019), each lecturer will naturally experience distinct types of stress, which will be determined by the complex interaction of their own personality, values, talents, and circumstances. Furthermore, coping techniques, personality factors, or the environment may combine to influence how intensely stressful situations are experienced on job satisfaction and the lecturer's emotional and cognitive well-being (Sani & Madugu, 2014). Consequently, the problem of the study can be seen in the following broad question: What is the effect stress on job satisfaction among mathematics teachers in Kebbi State higher institutions of learning.

OBJECTIVES OF THE STUDY

The main objectives of this study are to:

- i. identify any significant difference between mathematics lecturers with high occupational stress and those with low occupational stress on job satisfaction in Kebbi State higher institutions of learning.
- ii. determine any relationship between occupational stress of mathematics lecturers and job satisfaction in Kebbi State higher institutions of learning.

RESEARCH QUESTIONS

The following research questions are raised for answering:

- i. Is there any significant difference between mathematics lecturers with high occupational stress and those with low occupational stress on job satisfaction in Kebbi State higher institutions of learning?
- ii. Is there any significant relationship between occupational stress of mathematics lecturers and job satisfaction in Kebbi State higher institutions of learning?

NULL HYPOTHESES

The following null hypotheses were stated and tested at 0.05 level of significance to guide the study:

H₀₁: There is no significant difference between mathematics lecturers with high occupational stress and those with low occupational stress on job satisfaction in Kebbi State higher institutions of learning.

H₀₂: There is no significant relationship between occupational stress of mathematics lecturers and job satisfaction in Kebbi State higher institutions of learning.

METHODOLOGY

Descriptive survey design was used in this study. Sani (2017) highlighted that survey design is a useful scientific tool to use when one is interested in the ideas and attitudes of respondents, as well as the relationship between these opinions and their behaviour. The study's population comprises of 101 mathematics lecturers from Kebbi State higher institutions of learning, with a sample size of 80 lecturers drawn from Krejcie and Morgan table as presented in Table 1:

Table 1: Population and Samples Selected for the Study

SN	Institution(s)	LGA	No. of Lecturers	Samples
1	Adamu Augie College of Education (AACOE)	Argungu	11	11
2	College of Basic and Advanced Studies (COBAS)	Yauri	5	5
3	Federal University of Agriculture (FUZA)	Zuru	12	-
4	Federal University Birnin Kebbi (FUBK)	Kalgo	23	23
5	Kebbi State Polytechnic (KSPD)	Dakin Gari	9	-
6	Kebbi State University of Science and Technology (KSUSTA)	Aleiro	25	25
7	Waziri Umaru Federal Polytechnic (WUFP)	Birnin Kebbi	16	16
Total			101	80

Two instruments were adopted and used for the purpose of the study: the occupational stress index (OSI) and the job attitude scale (JAS).

- i. **Occupational stress index (OSI):** The occupational stress index created by Srivastava and Singh (1981) was used to assess stress. This scale was used to determine the stress level of the lecturers. The scale has 46 items, each of which must be scored on a five-point Likert scale of strongly agree (SA), agree (A), undecided (UD), disagree (D), and strongly disagree (SD),

with scores of 5, 4, 3, 2, 1 points respectively. The scale assesses the level of perceived stress among lecturers as a result of various job factors and conditions. Job overload, role ambiguity, role conflict, group and political pressure, individual's responsibility, under participation, feeling powerless, poor peer connections, intrinsic impoverishment, low status, difficult conditions at work, and unprofitability were among the items measured. The reliability index calculated using the split half (odd-even) approach and Cronbach's alpha coefficient for the entire scale were 0.94 and 0.90, respectively. The OSI's validity was determined by estimating the coefficient of correlation between OSI scores and other measures of job attitudes and behavior, and it was discovered to be adequately high.

- ii. **Job Attitude Scale (JAS):** The job attitude scale established by Srivastava (1997) is used to assess academics' job satisfaction. The inventory is used to assess employees' like (satisfaction) and disliking (dissatisfaction) for numerous areas of their employment, such as job activities, working conditions, social interactions, security, and compensation, among others. The statements in the questionnaire also express positive and negative attitudes regarding many aspects of work. The questionnaire has 15 true-keyed items. The items' homogeneity index ranged from 0.38 to 0.58. The scale's split-half dependability was found to be 0.79. The scale's validity has been demonstrated by correlations with measures of job stress ($r = 0.294$, $p > 0.05$), job performance ($r = 0.201$, $p > 0.0$), $n = 300$), psychological well-being ($r = 0.414$, $p > 0.01$, $n=300$).

PROCEDURES FOR DATA COLLECTION AND ANALYSES

The researchers visited the five (5) selected institutions under study and administered copies of the questionnaire (OSI and JAS) to mathematics lecturers, who responded individually. The decision rule was established by calculating the average score of the scoring values. $\left(\frac{5+4+3+2+1}{5} = \frac{15}{5} = 3.00\right)$ As a result, any item with a mean score greater than 3.00 would be accepted whereas any item with a mean score of less than 3.00 would be rejected (Muhammad, Sani, Abdullahi, & Sayyadi, 2023). The mean formula used was $\bar{x} = \left[\frac{(5AX5) + (Ax4) + (U9X3) + (DX2) + (5DX1)}{N} \right]$

RESULTS AND DISCUSSIONS

The following tables give the descriptive statistic, t-test, and correlation analysis results for occupational stress and job satisfaction responses. Table 2 compares occupational stress factors to job satisfaction components. To answer the research questions, the data were presented using descriptive statistics of mean and standard deviation as it relates to factors linked with occupational stress and job satisfaction.

Table 2: Mean and SD for the Responses of Stress and Job Satisfaction

Occupational Stress			Job satisfaction		
Factors	Mean ???	SD	Factors	Mean ???	SD
Relationship with departmental staff	2.92	1.96	Lecturing demands professionalism and too much cognitive and physical emotion	2.29	1.65
Stress related to leadership and annual	2.69	1.85	Satisfaction with departmental	2.71	2.03

performance evaluation (APER) report by HOD, Dean & Director			leadership and APER form evaluation report		
Job assignments, workload and working condition	3.98	2.73	Satisfaction with facilities	2.46	1.97
Stress related to insufficient salary	3.73	2.08	Respectable nature of job and income	3.19	2.69

Table 2 presents the mean and standard deviation (SD) for stress and job satisfaction responses. According to the table, the allocated elements have a higher average of 3.98. This suggests that job assignments, workload, and working conditions may generate stress among lecturers. Lecturers are likewise anxious about money, with a mean score of 3.73, indicating that they are neither pleased nor satisfied with their pay. Furthermore, there is a positive link between departmental employees and leadership, and the annual performance evaluation report when stress has an average of 2.92 and 2.69 respectively. According to the findings, lecturers are less stressed when it comes to their relationships with departmental staff, leadership, and the evaluation reports provided by HODs, Deans, and Directors (APER form). The lecturer's job is to teach and guide students in relation to educational topics, such as review, preparation for the full class, and assessment. When job assignments, workload, and working conditions are less associated with the academic field, the lecturer may insist. Table 2 also shows the mean and SD for the four (4) work satisfaction criteria. It was discovered that the most respectable type of job and income has an average mean score of 3.19, whereas lecturing requires competence and too much cognitive and physical emotion with the lowest average mean score of 2.29.

Hypotheses Testing

The mean scores on job satisfaction obtained by individuals with high and low occupational stress were compared using the t-test for the independent sample in order to evaluate the first null hypothesis, as shown in Table 3.

Table 3: t-Test Comparison for High Occupational Stress and Low Occupational Stress on Job Satisfaction

Occupational Stress	N	??	SD	SE _M	df	t-val.	p- value	Remark
High	40	42.16	3.94	1.78	78	0.613	0.000	Sig.
Low	40	44.08	3.83	1.49				

The student's t-test was used to compare the mean job satisfaction levels of individuals with high and low occupational stress. The independent sample t-test statistic is shown in Table 3 at a significance level of 0.05. It can be noted that mathematics lecturers with high occupational stress scored lower on job satisfaction (M=42.16, SD=3.94) than those with low occupational stress (M=44.08, SD=3.83), with a mean difference of 1.92. On job satisfaction, the result was statistically significant at $t(78)=0.613$ and $p=0.05$. This demonstrates that mathematics lecturers who experience high occupational stress are less satisfied than those who experience low occupational stress. In other words, the study found that mathematics lecturers who experience little occupational stress are more

satisfied with their jobs and as a result, the null hypothesis one is rejected. This study's findings are in consistent with those of Usman and Kabir (2019), Baluyos, Rivera, and Baluyos (2019), Muniandy et al. (2022), Thakre and Barua (2016), who discovered that high stress leads to low job satisfaction among academics, whereas low stress leads to good job satisfaction. A stress-free work environment is essential for a lecturer. In order to continue providing the highest level of service to students, lecturers attitudes and emotions, social community, as well as society at large, must be addressed. To evaluate the second null hypothesis, Pearson's moment correlation analysis between occupational stress and job satisfaction was computed, as shown in Table 4.

Table 4: Pearson's Moment Correlation Analysis Between Occupational Stress and Job Satisfaction

Variables			Occupational stress	Job satisfaction
Pearson correlation (r)	Occupational stress	Correlation coefficient	1.000	0.734**
		Sig. (2-tailed)	-	0.000
		N	40	40
	Job satisfaction	Correlation coefficient	0.734**	1.000
		Sig. (2-tailed)	0.000	-
		N	40	40

**Correlation is significant at $p < 0.005$ (2-tailed)

The correlation analysis between occupational stress and job satisfaction is shown in Table 4. The Pearson moment correlation coefficient (r) is 0.734 (2-tailed) with a p-value of 0.000, indicating that the correlation is significant at $p=0.05$. The null hypothesis, which states that there is no significant relationship between occupational stress and job satisfaction among mathematics lecturers, is rejected. Therefore, the findings revealed a significant relationship between occupational stress and job satisfaction. *This is in line* with the findings of Donthu and Subramanyam (2022), Jaafar et al. (2021), Mwakasangula and Kelvin (2020), and Thakre and Barua (2016), who ascertained that occupational stress may still be managed as long as it does not interfere with too many classroom activities. As a result, job satisfaction can be increased and less stress is good for the lecturer to work hard and complete any given task.

CONCLUSION AND RECOMMENDATIONS

The current study's findings show a significant relationship between occupational stress and job satisfaction, allowing institutions to acknowledge and sensitize lecturers in order to be functional in their workplaces. As a result, the findings of the study contribute in strengthening that occupational stress has a negative effect on job satisfaction since stress related to working environment and workload has a significant negative relationship with job satisfaction. Given the fact that occupational stress has a significant negative effect on lecturers and institutions in general, the issue should not be ignored. If lecturers are unable to manage the job stress, they are experiencing, they may develop mental or psychological problems. As a result, lecturers who are overworked will voluntarily request a transfer of service or early retirement. Hence, institutions will suffer not just from a lack of lecturers, but also from expertise, knowledge, and experience. Therefore, administrators need to pay close attention to the workplace stress on lecturers' job satisfaction, commitment, motivation, loyalty and performance. Stress has been a concern for

numerous individuals in all sectors, but its consequences in education require specific attention to ensure that students can learn effectively. If this issue is not addressed, the quality of education that students get in higher institutions of learning will be jeopardized. In view of the findings, the following recommendations were made:

- i. Working conditions for mathematics lecturers must be enhanced through the availability of required resources, as well as the formulation and implementation of policies aimed at providing a supportive working environment. This may aid in avoiding unnecessary occupational stress and, as a result, boost dedication, loyalty, performance, and job satisfaction.
- ii. Mathematics lecturers in higher institutions of learning should be provided with the skills necessary for successful stress management. This will assist individuals in understanding and implementing adaptive stress coping mechanisms, as well as increasing job satisfaction.
- iii. The correlation result reveals that lecturers do better at work when they are under less occupational stress. Departments should be aware of their lecturers' occupational stress because it can have an effect on job satisfaction. When stressed but satisfied with their work, lecturers might work hard.
- iv. Heads of mathematics departments should be provided with leadership capacity development training to help them improve their leadership knowledge and skills. This will eventually minimize the stress that mathematics lecturers are feeling as a result of a lack of suitable leadership style.

References

- Abdurrahman, M. S. & Mukhtar, M. S. (2021). Analysing the impact of motivation in enhancing students' mathematics achievement and technical skills among institutions of higher learning. 57th Annual National Conference of Mathematics Association of Nigeria (MAN) held at Bayero University Kano, from August 29th – 3rd September, 2021.
- Akingunola, R. O. & Adigun, A. O. (2013). Occupational stress and the Nigerian education industry. *Journal of Economics and Engineering*; 14(5), 14-21.
- Baluyos, G. R., Rivera, H. L. & Baluyos, E. L. (2019). Teachers' job satisfaction and work performance. *Open Journal of Social Sciences*; 7, 206-221. <https://doi.org/10.4236/jss.2019.78015>
- Donthu, S. & Subramanyam, P. (2022). Job satisfaction on job performance of employees in information technology industry. *Journal of Contemporary Issues in Business and Government*; 28(4), 1135-1147. <https://doi.org/10.47750/cibg.2022.28.04.087>
- Jaafar, S. B., Hassan, H. M. & Zamb, N. M. (2021). The relationship between stress and job satisfaction. *International Journal of Business and Management*; 5(1), 8-12. <https://doi.org/10.26666/rmp.ijbm.2021.1.2>
- Krejcie, R. V. & Morgan, D. W. (1970). Determining sample size for research activities. 38, 607-610.
- Mimura, C. & Griffiths, F. (2016). The effectiveness of current approaches to workplace stress management in the nursing profession: An evidence-based literature review. *Occupational and Environmental Medicine*; 60, 10-15.
- Muhammad, S. A., Abdullahi, F., Mustapha, I. & Sani, M. M. (2015). Teachers' perception on the causes of students' poor mathematics performance in secondary schools of Kebbi State, Nigeria. *Asian Journal of Science and Technology*; 6(2), 13-19.
- Muhammad, S. A., Sani, M. M., Abdullahi, F. & Sayyadi, M. Y. (2023). Developing polytechnic students' understanding of the concept of integration using differentiated instruction: a quasi-experimental study. *Journal of Mathematical Sciences & Computational Mathematics*; 4(2), 233-240.
- Muniandy, P. et al. (2022). Relationship between stress and job satisfaction among institute of teacher education lecturers. *International Journal of Science and Research*; 11(9), 326-332. www.ijer.net/10.21275/SR22905130215.
- Mwakasangula, E. & Kelvin, M. (2020). Relationship between occupational stress and job satisfaction among teachers in Tanzanian public primary schools. *Journal of Co-operative and Business Studies*; 5(1), 96-103.
- Parry, W., Kumar, S. & Awasthi, P. (2016). Stress among teachers: A theoretical examination. *The International Journal of Indian Psychology*; 3(4), 89-97.
- Ratnawat, R. & Jha, P. (2014). The impact of job-related stress on employee performance: A review and research agenda. *Journal of Business and Management*; 16(11), 1-6.
- Ragel, S. & Rachel, V. R. (2017). The effects of job rotation, role stress and job satisfaction on organizational citizenship behavior of bank employees. *Asian Journal of Economics, Business and Accounting*; 4(3), 1-10.
- Sani, M. A. (2017). *Introduction to research methodology and statistics: A guide for students and supervisors*. ABU press ltd.
- Sani, M. A. & Madugu, A. (2014). **Parental involvement and interest on senior secondary school students' mathematics achievement in Kebbi State, Nigeria. *International Journal of Advancements in Research and Technology*; 3(12), 14-30.**
- Samad, S. (2011). The effects of job satisfaction on organizational commitment and job performance relationship: a case of managers in Malaysia's manufacturing companies. *European Journal of Social Sciences*; 602-611.

- Srivastava, A. K. (1997). Self-management of occupational stress: Cognitive-behavioural approach. *Indian Journal of Industrial Relations*; 32, 487-495.
- Srivastava, A. K., & Singh, A. P. (1981). Construction and standardization of an occupational stress index: A pilot study. *Indian Journal of Clinical Psychology*; 8, 133-136.
- Thakre, N. & Barua, P. (2016). Occupational stress, job satisfaction and job involvement amongst organizational employees. *Indian Journal of Mental Health*; 3(1), 79-84. <https://www.researchgate.net/publication/325738967>
- Usman, A. M. & Kabir, F. S. (2019). Relationship between job demand, workload and job satisfaction among teachers in public secondary schools in Kaduna metropolis, Nigeria. *Journal of Science, Technology and Education*; 7(4), 42-49.
- Yeboah-Kordee, N. S., Amponsah-Tawiah, K., Adu, I. N. & Ashie, A. A. (2018). An investigation of the impact of occupational stress on employee performance: Evidence from the Ghanaian banking sector. *International Journal of Academic Research in Business and Social Sciences*; 8(9), 150-169.