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Teaching the Teachers: Reducing Brain Stress Among University Lecturers Through The Use of Artificial Intelligence

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Abstract : *The paper was on the use of Artificial Intelligence in reducing brain stress among university lecturers in Nigeria. It made known that the herculean tasks of lecturers in universities in recent years can jeopardise their mental health and affect their efficiency, effectiveness and general productivity in the academic landscape as stipulated in the Nigerian National Policy on Education. It discussed the concept of brain stress among university lecturers, causes of brain stress and its effects on the lecturers, an overview of use of AI in education, AI tools for lecturers, and ethical implication of AI in education. The paper concluded that by adopting AI solutions thoughtfully, universities can create more balanced and sustainable academic environments, supporting both the lecturers and their students in their academic endeavors. The following recommendations were made in the write-up among others. That : Universities should prioritize and implement AI tools that automate administrative functions such as grading, scheduling, and attendance tracking, universities should integrate AI in to lecturers' research activities, institutions should invest in AI-driven mental health platforms such as Woebot or Wysa, which provide on-demand counseling and stress-relief exercises to serve as a kind of mental support for lecturers, universities should offer continuous professional development workshops on how to use AI effectively in teaching, research, and administration and create policies to ensure responsible AI use among lecturers.*

Key words: Artificial Intelligence, Brain Stress, Reduce, Lecturers, University

Introduction

In recent years, the academic landscape has become increasingly demanding, particularly for university lecturers who combine teaching, research, administrative duties, community engagement and mentoring. This multifaceted workload and task often leads to heightened stress levels, which, when prolonged, can result in burnout and negatively impact their productivity.

Artificial Intelligence (AI) as a new development in the technological word offers a transformative solution to mitigate these challenges. By automating repetitive tasks, providing intelligent support, and enhancing personalized teaching strategies, AI can significantly reduce the cognitive or lecturers' work load in Universities. This paper explores the potentials of AI as a tool to alleviate brain stress among university lecturers, ensuring a healthier work-life balance and promoting optimal academic performance.

In this paper, the following shall be discussed:

i. Concept of Brain Stress Among University Lecturers
ii. Why Brain Stress and its Effects
iii. Overview of Artificial Intelligence in Education
iv. AI-Driven Tools to Support Lecturers
v. Ethical Implications of AI in Education
vi. Conclusion and Recommendation

Concept of Brain Stress Among University Lecturers

Brain stress can be said to be the mental strain and fatigue resulting from excessive cognitive demands placed on an individual over an extended period. In the view of Emmanuel (2024) posited in her study that lecturers' workload resulted in their brain stress and ageing in Universities in Oyo State, Nigeria. For university lecturers according to Orluwene, (2013)., brain stress can be observed to often arise from managing heavy workloads, meeting tight work deadlines, and balancing professional and personal responsibilities. Thus, mental burden can result in decreased focus, reduced creativity, and, over time, severe mental health challenges such as anxiety as well as depression.

Unlike other professions, lecturers in universities face stressors specific to their roles, these include according to the National Policy on Education (2014): Teaching - Preparing lecture materials, delivering lessons, and providing feedback to students which can be overwhelming.

Research - Academic institutions emphasize research output, which requires significant intellectual effort, time, and resources. Administrative tasks - Many lecturers are required to handle administrative tasks such as committee memberships, departmental coordination, results processing and curriculum development. Student Mentorship – Supervising students' project and mentoring

them, particularly postgraduate students adds to the cognitive workload of lecturers. Also is technological adaptation - With the rapid integration of technology in education, lecturers are expected to learn and utilize new digital tools efficiently, which can increase stress levels for those less tech-savvy. Services to the community are another areas where academic staff in the University can be stressed.

Consequences of Prolonged Brain Stress may eventually bring about burnout, emotional and physical exhaustion which may reduce lecturers' enthusiasm for teaching and research. Chronic stress can lead to conditions such as hypertension, insomnia, weakened immunity and some other health issues. This situation according to Tewari, (2020). leads to decreased productivity, wrong decision making, decreased problem solving skills and innovative thinking which affect teaching quality and research output. Reducing brain stress is therefore critical to fostering a supportive academic environment and ensuring lecturers' long-term well-being. Integrating Artificial Intelligence as a solution to alleviate these stressors among lecturers is deemed necessary.

Causes of Stress Among University Lecturers

University lecturers face numerous stressors that contribute to brain stress, According to Njoku (2014) and Orluwene (2013), they include the followings among others:

Workload Overload:
Lecturers are often saddled with teaching multiple courses, large class sizes, result processing, undergraduate and graduate project supervision and diverse student needs. Preparing lecture notes, grading assignments, and addressing individual concerns can be overwhelming and very stressful.

Research Pressure:
The "publish or perish" culture in academia places immense pressure on lecturers to produce high-quality research within tight timelines. Securing funding and meeting journal requirements add to the stress.

Administrative Demands:
Beyond teaching and research, lecturers frequently handle administrative responsibilities such as curriculum reviews, department meetings, and event coordination, which consume their time and mental energy.

Technological Challenges:
With the digitalization of education, lecturers are expected to learn and integrate new tools, such as Learning Management Systems (LMS), data analytics software, and virtual teaching platforms, which can be more challenging for the less computer literate lecturers in the university.

Ambiguity and Conflicts:
This refers to the seeming inadequate job descriptions and conflicting expectations among research, teaching, community service and administrative roles that create uncertainty and stress among lecturers.

Personal and Societal Expectations:
Balancing work and family life pressure, coupled with societal expectations of excellence, increases the burden on lecturers, especially for women in academia.

Effects of Brain Stress on University Lecturers
According to Ofuegbu, and Nwadiani, (2006) as well as Emmanuel (2024).Prolonged brain stress has far-reaching consequences for lecturers, their institutions, and students as follows:

Cognitive Impairments:
Chronic stress may affect lecturers' memory, focus, and decision-making and reduce lecturers' ability to deliver quality education.

Health Problems:
Among lecturers experiencing high levels of brain stress there is likely to be stress-related conditions such as migraines, cardiovascular issues, and insomnia.

Burnout and Low Morale:
Emotional exhaustion in most cases is most likely to lead to lack of motivation and enthusiasm for their academic responsibilities and thereby affecting teaching quality and research productivity.

Diminished Professional Relationships:
Oftentimes lecturers' strained relationships with colleagues and students result from their irritability and communication breakdowns caused by stress in the Universities.

Negative result on Students:
Stressed lecturers may not be efficient and effective in engaging the students this will result in lower student satisfaction and poorer academic outcomes.
In view of the various causes of brain stress among lecturers in the performance of their duties in the universities, innovative solution is required through the transformative roles of Artificial Intelligence.
In reiteration, Artificial Intelligence (AI) refers to the simulation of human intelligence by machines, particularly the computer systems. It encompasses various technologies, such as machine learning, natural language processing, and data analytics, enabling systems to perform tasks that typically require human intelligence, such as decision-making, problem-solving, and adapting to new information.

AI Overview and Education
AI has revolutionized the educational landscape by providing tools and systems designed to enhance teaching, learning, and administrative processes. Its key applications in the university system amongst others include:

i. Automated Administrative Tasks: AI can streamline repetitive administrative duties such as grading, attendance tracking, and work scheduling.
ii. Personalized Learning: AI algorithms analyze students' learning patterns to tailor educational experiences and enable lecturers to focus on higher-level instructional tasks.
iii. Content Development: Tools like AI-driven content creators assist in generating lesson plans, presentations, and course materials efficiently.
iv. Research Support: AI-powered tools aid in literature reviews, data analysis, and even generating research questions and hypotheses and reduce the cognitive load of lecturers.
v. Feedback Systems: AI systems provide instant feedback on assignments and assessments. It saves lecturers' time and efforts.

Currently and globally, universities are on the increase adopting AI to enhance academic and administrative processes. For instance: Adaptive learning platforms like Coursera and edX use AI to provide customized learning experiences while AI tools like Grammarly and Turnitin support lecturers in grading and plagiarism detection. All these reduce Brain stress among lecturers in universities.

AI Driven Tools in The University System
AI tool has the potential for reducing brain stress among lecturers in all aspects of their tasks in the university by making use of its following tools:

Automated Grading Systems:
Tools like Gradescope and EvalAI automate the grading of assignments, quizzes, and even subjective assessments, saving lecturers' significant time and efforts. Through Scheduling and Time Management Software, AI-powered platforms like Microsoft Bookings and Calendly assist in managing appointments, lectures, and deadlines and ensure effective time management. It can also assist lecturers in data analysis and Students' Performance. AI systems such as Tableau and Power BI also assist lecturers to analyze datasets in carrying out their teaching tasks.

AI Tools for Teaching and Content Creation
One of the ways AI enhance universities lecturers job is by providing Learning Management Systems (LMS) The use of platforms like teaching Module and traditional white board teaching integrate AI to provide personalized learning experiences and real-time feedback to teachers and thereby easing the burden on lecturers. The use of AI also assist lecturers in creating lecture notes lesson plans and slides presentation in the classrooms, seminars and workshops efficiently and effectively. Through the use of AI, lecturers are able to make Google Expeditions, create better experiences and convey complex and abstract concepts more effectively to students' virtual realities and simulations in the class. In line with this, Malik, & Gangopapadhyay, (2023) observed that the existence of digital platforms also known as unified communication platforms such as flipped classrooms, Google classroom, zoom, ;earning Management System (LMS) Microsoft teams Google meet, Google documents, Video Conferencing and other widely used teaching and learning tools help lecturers collaboration and swift communication.

Research and Collaboration
Artificial Intelligence for research and Collaboration purposes can reduce brain stress among lecturers in the universities. It may be very useful to lecturers in their literature review and citation management while engaging in their paper or journal article writings.

Tools like Semantic Scholar and Zetero enable AI to streamline literature searches and assist in organizing references used in the writing exercise. This will to a greater extent reduce time spent and stress among the lecturers in their research efforts. Software like IBM SPSS and RapidMiner make use of AI algorithms to analyze research data efficiently and enable lecturers to have a better data interpretation and results. It facilitates communication, project management, enhanced teamwork among lecturers and researchers. By making use of AI tools, university lecturers can automate mundane tasks, enhance efficiency, and prioritize their intellectual and creative pursuits, ultimately reducing brain stress.

Implications of AI Use in Education -The Draw Backs

The following are some associate problems of use of AI in educational institutions

Information leakage

AI systems used in education often requires access to sensitive data, including lecturers' and students' personal information, performance metrics, and research outputs. Mismanagement or breaches of such data can lead to privacy violations. Universities must implement stringent data protection policies and adhere to regulations such as the General Data Protection Regulation (GDPR) to safeguard official and sensitive information.

Fear of Job Displacement

While AI can reduce workload, its adoption can serve as a threat to job security to lecturers as tasks such as grading and content creation, previously handled manually by them can now be automated. It is therefore necessary for institutions to emphasize AI as a supportive tool for lecturers' jobs rather than using it as a replacement to diminish human roles.

Bias in AI Algorithms

AI systems are only as good as the data they are trained on. If algorithms are fed with biased or wrong data, they can perpetuate an existing inequalities, such as favoring certain demographic groups in student performance analysis. Information from AI may be subjected to the biases of the user. Developers and institutions must work to ensure fairness and equity in AI systems by conducting regular audits and employing diverse training datasets.

Excessive Use of AI

Undue reliance on AI tools can reduce lecturers' engagement in critical areas like decision-making and personalized mentorship. It kills human reasoning quickly. While AI can automate routine tasks, human judgment remains essential in addressing complex educational and ethical issues. A balanced integration of AI is necessary to avoid undermining lecturers' roles.

Unethical Research Practices

Quite a number of AI user's tools in research used them wrongly. For instance, generative AI tools that assist in writing or data analysis should be acknowledged appropriately to avoid ethical violations such giving wrong information, references and plagiarism or misrepresentation of results.

Digital Divide

The implementation of AI in education can exacerbate inequalities if not properly managed. Institutions with limited resources may struggle to adopt these technologies, leaving lecturers in such environments at a disadvantage. Policies promoting equitable access to AI tools are essential to bridge this gap.

Emotional Detachment in Education

AI-driven solutions may inadvertently reduce human interaction in academic settings. For example, AI chatbots handling student inquiries might lack the empathy and understanding that a lecturer or counselor provides. Ensuring that AI complements rather than replaces human interaction is crucial in maintaining the emotional and social aspects of education.

To address these challenges, institutions must establish clear guidelines for AI use in education,

train lecturers on how to use AI responsibly and conduct regular evaluations of AI systems for fairness, transparency, and effectiveness. Ethical considerations are fundamental to ensuring that the benefits of AI in education are maximized while minimizing potential risks.

Conclusion

AI offers immense promise in reducing brain stress among university lecturers, providing them with the tools to manage their responsibilities more efficiently and effectively. As universities continue to embrace digital transformation, it is essential that AI technologies are used strategically and ethically, focusing on improving the well-being of lecturers while enhancing the quality of education. By adopting AI solutions thoughtfully, universities can create more balanced and sustainable academic environments, supporting both the lecturers and their students for years to come. This paper has outlined the key benefits, challenges, and ethical

considerations surrounding the use of AI by universities' lecturers, with a particular focus on reducing brain stress among them. As the role of AI in academia continues to evolve, ongoing research and dialogue will be essential in maximizing its positive impact.

Recommendations

In view of the foregoing, universities can harness the power of AI to reduce brain stress among lecturers, improve their well-being, and enhance their overall teaching effectiveness if the following recommendations are upheld.

i. Universities should prioritize and implement AI tools that automate administrative functions such as grading, scheduling, and attendance tracking.
ii. AI-powered research tools can streamline the process of literature review, data analysis, and hypothesis generation. Universities should integrate AI in to lecturers' research activities.
iii. AI-based adaptive learning platforms, such as Smart Sparrow and Knewton, can be employed to create personalized learning experiences for students.
iv. Institutions should invest in AI-driven mental health platforms such as Woebot or Wysa, which provide on-demand counseling and stress-relief exercises. This will serve as a kind of mental support for lecturers.
v. Universities should offer continuous professional development workshops on how to use AI effectively in teaching, research, and administration.
vi. Given the ethical challenges associated with AI, institutions must create policies to ensure responsible AI use.
vii. Lecturers should be encouraged to use AI tools in ways that enhance their work while preserving essential human elements of teaching, such as mentorship and emotional support for students. This will encourage a balanced approach to AI Use.

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