ARTIFICIAL INTELLIGENCE AND THE RELEVANCE OF LECTURERS: AN EXPLORATORY STUDY OF SELECTED UNIVERSITIES IN RIVERS STATE, NIGERIA.

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Abstract

The current study examined the relevance of lecturers in the Age of Artificial Intelligence: An exploratory study among selected universities in Rivers State. This study adopted a correlational research design in studying three (3) selected universities which constitutes accessible population. From the field survey, two hundred and fifty nine (259) copies of questionnaire were retrieved and analyzed; descriptive statistics was employed in analyzing the demographic data of respondents; also, Spearman's Rank Order Correlations Coefficient from SPSS version 20.00 was the statistical tool utilized to examine the relationship between the dimensions of Artificial Intelligence and relevance of lecturers in the age Artificial Intelligence and the P-values obtained were used to test hypotheses postulated for the research between the variables. Findings revealed that Artificial Intelligence through its indicators of adaptive learning, automated grading and emotional artificial intelligence had weak relationship with the future relevance of lecturers in the teaching profession. However, it was concluded that human instructors are irreplaceable because they have special abilities including critical thinking, creativity and emotions, despite some participants' beliefs that Artificial Intelligence would someday replace teachers and it was recommended the provision of educational training environments that add to improving the part of Artificial Intelligence applications in the professional development of lecturers to sustain their relevance in the profession.

Keywords: *Artificial Intelligence, Relevance, Lecturers, Adaptive and Personalized learning, Automated Grading and Feedback, Emotional Artificial Intelligence, Future of Lecturing Profession*

Introduction

Undoubtedly the use of technology in research and teaching should be adopted in the current practices of teaching and lecturing in order to help both their discipline and pre-service and in-service teachers ascertain more positive outcome in their services. This is due to the convergence of technologies in the area of education. To become familiar with the technologies, lecturers need opportunities for professional development. It is only when the technology is transparent that the physical barrier between teachers and students becomes negligible, regardless of whether technology is employed to expand opportunities for interaction and problem-solving in the traditional classroom or in a distance-delivered course (University of Missouri-Columbia, 2020).

Siegle et al. (2021) respect the lecturers' capacity to use technology to not only connect with students and expand their resources but also to improve their individual quality of instruction and

learning. Sancar et al. (2021) presented an institutional framework to remind us that we need to renew our commitment to our faculty in light of the quick development of technologies and their application to the field of education. As a commitment to our faculty, the purpose of this study was to investigate the professional development of lecturers with regard to technology.

Statement of the Problem

The increasing use of artificial intelligence in various fields and sections of the economy shows its great importance; including its role in education, and the improvement of educational institutions. Artificial intelligence is often viewed by some as a debatable subject and it is often represented in a negative way in most cases by some researchers. Some have described it as a convincing blessing for institutions, while for some it is a technology that threatens the very existence of the human race because it may be able to control and control man, but in reality Artificial intelligence has affected our lifestyle either directly or indirectly and shaping tomorrow's future (Duin & Bakhshi, 2020). This has prompted some researchers to ask an exciting question to what extent technology can revolutionize the world of education (Aldosari, 2020). So this study examines the future of and relevance of lecturers in universities higher education if artificial intelligence is adopted and the extent to which these institutions are prepared to adopt applications of artificial intelligence in their educational systems.

Aim and Objectives

The aim of the research undertaking is to examine the relationship between artificial intelligence and the future relevance of lecturers in the teaching profession; other objectives are to;

i. Ascertain the relationship between adaptive and personalized learning and the relevance of lecturers in the age of artificial intelligence in selected universities
ii. Find out the relationship between automated grading and feedback and the relevance of lecturers in the age of artificial intelligence in selected universities
iii. Examine the relationship between emotional AI and the relevance of lecturers in the age of artificial intelligence in selected universities

Research Questions

The following research questions are a guide to the study;

i. What is the relationship between adaptive and personalized learning and the relevance of lecturers in the age of artificial intelligence in selected universities?
ii. What is the relationship between automated grading and feedback and the relevance of lecturers in the age of artificial intelligence in selected universities?
iii. What is the relationship between emotional AI and the relevance of lecturers in the age of artificial intelligence in selected universities?

Research Hypotheses

The following hypothetical statements are as tentative answers to the research questions;

$H0_1$: Adaptive and Personalized Learning does not contribute significantly to the relevance of lecturers in the age of artificial intelligence

$H0_2$: Automated Grading and Feedback does not contribute significantly to the relevance of lecturers in the age of artificial intelligence

$H0_3$: Emotional AI does not contribute significantly to the relevance of lecturers in the age of artificial intelligence

Literature Review

Utilizing technology entails using instruments, procedures, and methods (Bates, 2019). For this study, we adopt Bates' description of the technology, which is based on assessments of the literature and in-depth stakeholder engagements. Within this study "technology" refers to several devices or instruments, including electronic computers and calculators. Technology refers to the procedures or ways the technologies are used or manipulated. Technology also refers to the purpose, use, or application of the technology (Bates, 2019). As the study went on, it became evident to the researchers that most, if not all, of the participants, were acquainted with the term "technology," and this study's reference to Bate's description of technology as an instrument, procedure, or method was upheld.

The Concept of Artificial Intelligence

Artificial intelligence is one of the most prominent modern applications of information systems as a field of modern knowledge that is interested in studying and understanding the nature of human intelligence and its simulations to create a new generation of smart computers that can be programmed to accomplish many of the tasks that need a high ability of inference, deduction and perception, which are qualities that people enjoy It is included in the list of smart behaviors. Artificial intelligence applications are important in the fields of life, but they are more important for educational institutions and universities, which represent a great necessity that cannot be dispensed with, as universities today are no longer limited to education, but rather have become an essential part of the system of sustainable development in societies, as it stresses (Morín, 2018).

Dimensions of Artificial Intelligence Adaptive and Personalized Learning

Adaptive learning or intelligent tutoring systems (ITS) is a virtual learning environment that adjusts teaching and learning methodologies and resources to individual learners' skills and requirements (Luckin et al., 2016). To enable the system to make appropriate judgments about what learning content to deliver to the student, several current ITS incorporate machine learning techniques, self-training algorithms based on big data sets, and neural networks (Luckin et al., 2016) to adjust the rate, order, or amount of learning based on the student (JISC, 2021). Adaptive learning offers a personalized learning experience to the student, identifying each student's proficiency level and providing them with activities and assessments relevant to them (Baker, 2021).

Automated Grading and Feedback

AI is being used to grade students automatically. August and Tsaima (2021) noted how the use of the auto-grader program is used to evaluate student work without human involvement. This tool assesses and marks writings in addition to scoring multiple-choice tests. In a study, the outcomes of auto-graders can range from binary (correct/incorrect) to generalize input (August & Tsaima, 2021). Haddawy et al. (2010) demonstrated in their research how an AI and virtual reality system was used for automatic grading. They described how the system evaluates dentistry students' proficiency based on their motions using a video monitor and haptic device, calculates their ratings in accordance, and classifies them as novices or specialists (Haddawy et al., 2010).

Emotional AI

Emotional AI is being used by Education Technology businesses to measure social and emotional learning (McStay, 2019). Affective computing is a field of study that focuses on building systems and devices that can detect, recognize, and interpret human emotions (Pabba & Kumar, 2021). Affective computing is among the AI technologies that are utilized to construct autonomous engagement monitoring systems that track and report student engagement levels by analyzing nonverbal signs without the need for human intervention (Pabba & Kumar, 2021).

Artificial Intelligence Applications in Teaching and Learning

Artificial intelligence can automate basic activities in education, such as classification and grading.

- AI systems can make educational programs tailor to the need of students. That normally is made through current advanced technology applications and programs.
- AI enables students to obtain an extra support. This feature works to empower the principles of educational establishments to serve students to the maximum extent.
- Programs that depend on AI systems let students and teachers have the opportunity to provide useful comments for others to benefit and share experiences.
- AI systems change the way to find information and interact with it. These types of intelligent systems play a big role in the way we interact with information in our personal and professional lives. Over the past few decades, AI systems have radically changed the manner we interact with information. With newer and more integrated technology, future students may have significantly different experiences in searching and finding facts than today's students (Chan & Tsi, 2023).

Empirical Review

There are much previous literature that discussed the topic of artificial intelligence and its impact on higher education, and among these studies, the Fernández, Fernández and Aburto (2019) study reviewed the impact of artificial intelligence on higher education and the study concluded that the coming period will witness the transition from the traditional roles of universities to new ones such as replacing the traditional language with the digital language, and the development of teaching methods in a new way which It requires enhancing students' skills to adapt to social intelligence applications.

Ma and Keng (2018) study revealed the impact of artificial intelligence on higher education, as these effects were represented by a low dependence on human resources in education, and new skill sets will be needed. Higher education needs the challenge of preparing students for the AI revolution and providing students with the skill sets necessary to compete in the era of artificial intelligence. This recent research aims to shed light on the development of higher education and the revolution with the advancement of artificial intelligence?

Khare, Stewart and Canada (2018) study attempted to reveal the potential of artificial intelligence to positively influence a student's success; the study reviewed the form of education when applying artificial intelligence as students will rely more on administrative staff while faculty members at the Institute of Higher Education oversee management systems Learning. The study concluded that the applications of artificial intelligence will increase the ability of educational institutions to perform their primary task of teaching, learning and research.

Gamoura et al. (2018) study tried to prove that the technical reality as well as the moral and technological barriers prevent suggest the idea of absolute machine freedom in decision-making in the near future, including fears currently mounting on the media and academia, despite the characteristics of AI including automatic actions, self-development and automatic machine learning. The researchers gave the foundations of artificial intelligence and its characteristics and some of its living models to shed light on the reality of its developments and aspirations between what it actually reached and what it hopes to reach.

Abu Hasanein (2018) in his dissertation entitled "An Intelligent Tutoring System for Developing Education: Case Study (Israa University)" mentioned that a smart tutor was designed using an intelligent tutoring system (ITS) tool improved by Prof. Sami Abu Nasser to develop the process of teaching the computer skills course. This workshop is a university training course that teaches students of Israa University on different samples of students. After the completion of the course and the evaluation of the lecturers who taught the course and used the system in their teaching process, a set of conclusions and recommendations were reached. The tutor's use of the Artificial Intelligence tools was seen to be

important in the development of laboratory teaching and it has positive results in improving the level of scientific department students.

In a study entitled "Educational Applications of Artificial Intelligence in Social Studies," Al-Saud (2016) aimed to uncover the role of AI in the development of teaching strategies and models, with concentration on its applications in academic learning and teaching in Social Studies department. The study concluded with a definition of AI, a distinction between AI and human intelligence, and suggestions to conduct more AI-related studies in the Social Studies field.

Alqattan (2012) conducted a study entitled "The Readiness of Managerial Leaderships to adopt the Applications of Artificial Intelligence in Educational Organizations" where he tried to fathom the managerial leaders' ability to activate the requirements needed for applying AI in their educational organizations. The results show that there is an effective interest towards adopting artificial intelligence in the managerial leadership of the organizations participating in the study. Like the afore-mentioned studies, the present study subscribes itself in the same research field (AI in education). However, this research is distinct thanks to its method as a futuristic study and its concentration on the potential scenarios as determined by experts' expectations about the future of higher education and AI transformation.

Methodology

This study adopted a cross sectional survey research design in studying three (3) selected universities which constitutes accessible population, however our study units include the academic staff of the institutions having that our unit of analysis is at individual level of the organization. The study respondents from the institutions constituted the population of the study; from the field survey, we retrieved and analyzed two hundred and fifty nine (259) copies of questionnaire; descriptive statistics was employed in analyzing the demographic data of respondents; also, Spearman's Rank Order Correlations Coefficient from SPSS version 20.00 was the statistical tool utilized to examine the relationship between the dimensions of Artificial Intelligence and relevance of lecturers tomorrow and to test hypotheses postulated for the research between the predictor and criterion variables.

Table 1.1: Population and Sample of Study

Name of Institutions	Sample of Academic Staff	Number Retrieved
1) University of Port Harcourt	(1350/3298)*357 = 146	109
1) River State University (RSU)	(1098/3298)*357 = 119	95
2) Ignatius Ajuru University of Education, Rumuolumeni (IAUE)	(850/3298) * 357 = 70	55
TOTAL	**357**	**259**

Source:https://knoema.com/NGEDUSEC2020/educationstatisticsofnigeria?indicator=1000070-number-of-academic-staff-strength (2024)

Results and Discussion

Table 1.2: Demographics of Respondents

Institutions		Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent
Valid	University of Port Harcourt	109	42.1	42.1	42.1
	Rivers State University	95	36.7	36.7	78.8
	Ignatius Ajuru University	55	21.2	21.2	100.0
	Total	259	100.0	100.0	
	GENDER				
	Male	180	69.5	69.5	69.5

Female	79	30.5	30.5	100.0
Total	259	100.0	100.0	
Job Position				
Lecturer 1 and Above	149	57.5	57.5	57.5
Below Lecturer 1	110	42.5	42.5	100.0
Total	259	100.0	100.0	
DURATION				
Below 5 years	55	21.2	21.2	21.2
5-10 years	122	47.1	47.1	68.3
Above 10 years	82	31.7	31.7	100.0
Total	259	100.0	100.0	
AGE				
25-30 years	64	24.7	24.7	24.7
31 - 40 years	131	50.6	50.6	75.3
Above 40 years	64	24.7	24.7	100.0
Total	259	100.0	100.0	
Academic Qualification				
B.A/B.Sc/B.Ed/HND	58	22.4	22.4	22.4
MBA/MSc/M.Ed/MA	71	27.4	27.4	49.8
Ph.D/DBA	101	39.0	39.0	88.8
Others	29	11.2	11.2	100.0
Total	259	100.0	100.0	

SPSS output, Version 20 – Field Survey, 2024

From the field survey, total number of two hundred and fifty nine (259) copies of structured questionnaire was valid and usable from the field report, and was analyzed. Thus, the demographic distribution of respondents is reported in Table 1.2.

Analysis of Research Questions and Test of Hypotheses

$H0_1$: Adaptive and Personalized Learning does not contribute significantly to the relevance of lecturers in the age of artificial intelligence

Table 1.3: A test of association between adaptive and personalized learning and relevance of lecturers in the age of artificial intelligence

Correlations

			Adaptive. Learning	Lecturer. Rel
Spearman's rho	Adaptive. Learning	Correlation Coefficient	1.000	.287**
		Sig. (2-tailed)	.	.061
		N	259	259
	Lecturer. Rel	Correlation Coefficient	.287**	1.000
		Sig. (2-tailed)	.061	.
		N	259	259

**. Correlation is significant at the 0.05 level (2-tailed).

SPSS output, Version 20 – Field Survey, 2024

Table 1.3 presents Spearman's rank order correlation run to ascertain the relationship between Artificial Intelligence and the relevance of lecturers as reported by two hundred and fifty nine (259) respondents. A weak positive correlation coefficient value was reported between variables which were statistically significant (rho = .287**, p = .061 > 0.05 (alpha value) this suggests that there is weak significant relationship between adaptive and personalized learning and lecturers' relevance;

Decision: The null hypothesis stated is accepted and we state that there is no significant relationship between adaptive and personalized learning and lecturers' relevance in the selected Universities in Rivers State.

$H0_2$: Automated Grading and Feedback does not contribute significantly to the relevance of lecturers in the age of artificial intelligence

Table 1.4: A test of association between automated grading and feedback and relevance of lecturers in the age of artificial intelligence

Correlations

			Automated. Grading	Lecturer. Rel
Spearman's rho	Automated. Grading	Correlation Coefficient	1.000	.398**
		Sig. (2-tailed)	.	.056
		N	259	259
	Lecturer. Rel	Correlation Coefficient	.398**	1.000
		Sig. (2-tailed)	.056	.
		N	259	259

**. Correlation is significant at the 0.05 level (2-tailed).

SPSS output, Version 20 – Field Survey, 2024

Table 1.4 presents Spearman's rank order correlation run to ascertain the relationship between automated grading and feedback and relevance of lecturers as reported by two hundred and fifty nine (259) respondents. A weak positive correlation coefficient value was reported between variables which were statistically significant (rho = .398**, p = .056 > 0.05 (alpha value) this suggests that there is weak significant relationship between automated grading and feedback and relevance of lecturers;
Decision: The null hypothesis stated is accepted and we state that there is no significant relationship between automated grading and feedback and lecturers' relevance in the selected Universities in Rivers State.

$H0_3$: Emotional AI does not contribute significantly to the relevance of lecturers in the age of artificial intelligence

Table 1.5: A test of association between emotional AI and relevance of lecturers in the age of artificial intelligence

Correlations

			Emotional.AI	Lecturer. Rel
Spearman's rho	Emotional.AI	Correlation Coefficient	1.000	.225**
		Sig. (2-tailed)	.	.064
		N	259	259
	Lecturer. Rel	Correlation Coefficient	.225**	1.000

	Sig. (2-tailed)	.064	.
	N	259	259

**. Correlation is significant at the 0.05 level (2-tailed).

SPSS output, Version 20 – Field Survey, 2024

Table 1.5 presents Spearman's rank order correlation run to ascertain the relationship between Artificial Intelligence and the relevance of lecturers as reported by two hundred and fifty nine (259) respondents. A weak positive correlation coefficient value was reported between variables which were statistically significant (rho = .225**, p = .064 > 0.05 (alpha value) this suggests that there is weak significant relationship between emotional AI and lecturers' relevance;

Decision: The null hypothesis stated is accepted and we state that there is no significant relationship between emotional AI and lecturers' relevance in the selected Universities in Rivers State.
The findings of Ma and Keng (2018) corroborates the empirical results; in their study revealed the impact of artificial intelligence on higher education, as these effects were represented by a low dependence on human resources in education, and new skill sets will be needed. Higher education needs the challenge of preparing students for the AI revolution and providing students with the skill sets necessary to compete in the era of artificial intelligence.

Conclusion

In light of the above, artificial intelligence has begun to occupy a significant spot in numerous territories, including education. Especially towards raising teachers' competence to use artificial intelligence although the fears abound as it concerns its potency in replacing human resource in the workplace and in this context the education sector. Previous studies have proven the adequacy of human improvement programs. In two decades at the latest, AI systems were occupying most of human life. It is then inevitable to manage them dependent on the measure of information put away and the way they are processed.

Recommendations

The following recommendations are given;

i. There should be increased awareness among specialists of the requirements of applying artificial intelligence in education
ii. There is need to pay apt attention to the challenges arising from the applications of artificial intelligence to the jobs and roles of academics in universities
iii. Organize academic conferences on all AI issues.
iv. Create community cooperation with specialized companies in AI field. Finally, the researcher encourages academic researchers to conduct more studies about the future of all levels of education in the light of AI transformations.
v. Designing educational software based on artificial intelligence to raise the qualifications of lecturers.
vi. There is need to provide educational training environments that add to improving the part of AI applications in the professional development of lecturers.

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