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Original Research Article

Utilization of Artificial Intelligent (AI) in Teaching and Learning in Higher Education for Global Best Practices

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Abstract: The study examined the utilization of artificial intelligent (AI) in teaching and learning in higher education for global best practices. Two null hypotheses were formulated to guide the study. The study adopted the ex-post facto research design. The population of the study consisted of 3800 students and staff of the University within Calabar campus. The stratified random sampling technique was used to select 208 students and staff from a population of 3800 using proportionality of 1.12% with students and staff as basis of stratification from the population. The sample of this study was two hundred and eight (208) respondents. The questionnaire was designed to measure the two sub-independent variables. Mean and standard deviation were used to answer the request questions. While Simple linear regression analysis statistical tool was employed to test the null hypotheses that were formulated to guild the study at 0.05 level of significance. The results of this study shows that there is a significant influence of utilization of artificial intelligent (AI) in teaching and learning in higher education for global best practices and the use of artificial intelligent (AI) in teaching and learning in higher education significantly predict staff and students performance in the university. The study concludes that, there is a significant influence of utilization of artificial intelligent (AI) in teaching and learning in higher education for global best practices and the use of artificial intelligent (AI) in teaching and learning in higher education significantly predict staff and students performance in the university. Based on the conclusion, it was recommended that since there is a significant influence of utilization of artificial intelligent (AI) in teaching and learning in higher education for global best practices, university staff and students should always make use of AI and the university management should put in place AI facilities to increase staff and students performance in the university.

Keywords: Artificial intelligent, Teaching, Learning, Higher education, Students performance.

INTRODUCTION

Education plays a key role in the development of human civilization. Since ancient times, the method of learning is constantly evolving and undergoing numerous changes due to new technologies. With the intervention of the internet and digital technology, the online platform is trending slowly and surely taking the place of classrooms. Thus, the modern education system has completely eradicated the space limitation of a classroom by encouraging the participation of more students from every corner of the world. By providing knowledge through online platforms or websites, the modern education system has been able to attract a variety of students and teachers to participate in technology-based learning. Freed from any kind of limitations of time, space or number of students, the popularity of online learning is increasing day by day (Mircea, 2023).

The Application of Artificial Intelligence in Education in the development of artificial intelligence technology, modern education will be combined with more technologies, such as speech semantic recognition, image recognition, Augmented Reality / Virtual Reality, machine learning, brain neuroscience, quantum computing, block chain and so on. These technologies are collectively referred to as intelligent technologies and

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are consistently and rapidly integrated with the education industry. The intelligent upgrade of the education industry is in full swing. At present, more and more artificial intelligence education products have been applied to school education. (Yan, 2017) in Liu, Salmiza, Huang, Syed and Syed, (2020).

RESEARCH QUESTIONS

This study is guided by the following research questions:

1. To what extent does the utilization of artificial intelligent (AI) in teaching and learning in higher education significantly enhances global best practices in the university?
2. To what extent does the use of artificial intelligent (AI) in teaching and learning in higher education significantly predict staff and students performance in the university.

Statement of Hypotheses

Two hypotheses were postulated and tested at .05 level of significance. They are;

Ho1: There is no significant influence of utilization of artificial intelligent (AI) in teaching and learning in higher education for global best practices.

Ho2: The use of artificial intelligent (AI) in teaching and learning in higher education does not significantly predict staff and students performance in the university.

METHODOLOGY

Research Design:

The study adopted the ex-post facto research design. The population of the study consisted of 3800 students and staff of the University of Cross River State within Calabar campus. The stratified random sampling technique was used to select 208 students and staff from a population of 3800 using proportionality of 1.12% with students and staff as basis of stratification from the population. The questionnaire were designed to measure the two sub-independent variables. Mean and standard deviation were used to answer the request questions. While Simple linear regression analysis statistical tool was employed to test the null hypotheses that were formulated to guild the study at 0.05 level of significance.

Instrumentation:

A structured questionnaire designed by the researcher was used to collect the needed data in this study. This is titled "Utilization of Artificial Intelligent in Teaching and Learning in Higher Education for Global Best Practices (UAITLHEGBPQ) questionnaire. The reliability of the instrument was determined, using the Cronbach Alpha method which involved 50 non sample staff and students who were not part of the sample used in the study. The reliability of the instrument was 0.85 reliability coefficient.

Sample and Sampling Procedure:

The stratified random sampling technique was used to select two hundred and eight (208) students and staff from a population of 3800 using proportionality of 1.12% with students and staff as basis of stratification from the population given the total sample of two hundred and eight (208) respondents used for the study. Contacts were made with the selected respondents and they were briefed on the aim and importance of the study and their cooperation solicited with regards to their responses to the questionnaire items. After two weeks interval the completed questionnaire which numbered up to 208 copies were retrieved.

Validity of the Instrument:

The questionnaire was subjected to face validation by experts in Educational Measurement and a Senior lecturer of Educational Research and Statistics all of the University of Cross River State, (UNICROSS), Calabar. These experts scrutinized the relevance of the items in the instrument to the work, suitability of the number of items and appropriateness of the instrument in general to the purpose of the study and made useful correction.

Method of Data Analysis:

The research questions were answered using means score and standard deviations, while the hypotheses were tested using Simple linear regression analysis statistical tool at alpha level of 0.05.

RESULTS AND DISCUSSION

The result in table 1 shows the demographic description of the sample. The result shows that there were 127 (56.0%) males and 98 (44.0%) females.

Table 1: Demographic Description of Study Sample

Variable Name	Category	N	%
Respondents	Students	102	49.0
	Staff	106	51.0
Total		208	100.0

The result in table 1 shows that there were 102 (49.0%) student and 106 (51.0%) staff. Hence, the sample was considered heterogeneous enough for the study.

Data Table 2 showed the results of Regression analysis of learning in higher education for global best practices by utilization of artificial intelligent (AI).

Table 2: Regression of learning in higher education for global best practices by utilization of artificial intelligent (AI)

R-value = .371	Adj. R-squared			= .133	
R-squared= .138	Standard error			= 3.167	
Source of Variation	Sum of squares	df	Mean square	f-value	p-value
Regression Residual Total	329.733 2066.267 2396.000	1 206 207	329.733 10.030	32.873*	.000
Predictor Variable	Unstandardized coefficient		Standard coefficient	t-value	p-value
	β	Std. error			
Constant	7.702	1.206		6.388*	.000
Utilization of artificial intelligent (AI) in teaching and learning	.446	.078	.371	5.734*	.000

* Significant at .05 level.

The result in Table 2 shows that an r-value of .371 was obtained giving an r-squared value of .138. This means that about 13.8% of the total variance in global best practices is explained by the variation in the utilization of artificial intelligent (AI) in teaching and learning in higher education. The p-value (.000) associated with the computed f-value (32.873) is less than .50. Hence, the null hypotheses was rejected, this means that there is a significant influence of utilization of artificial intelligent (AI) in teaching and learning in higher education for global best practices, with both regression constant (7.702) and coefficient (.446) making significant contribution in the prediction model (t=6.388 & 5.734 respectively, P=.000≤.05).

Data in Table 3 shows the Regression analysis of students' performance in the university by the use of artificial intelligent (AI) in teaching and learning in higher education.

Table 3: Regression analysis of students' performance in the university by the use of artificial intelligent (AI) in teaching and learning in higher education

R-value = .876	Adj. R-squared			= .766	
R-squared= .767	Standard error			= 1.645	
Source of Variation	Sum of squares	df	Mean square	f-value	p-value
Regression Residual Total	1838.500 557.500 2396.000	1 207 208	1838.500 2.706	679.337	.000
Predictor Variable	Unstandardized coefficient		Standard coefficient	t-value	p-value
	β	Std. error			
Constant	-.084	.571		-.148	.883
The use of artificial intelligent (AI) in teaching and learning	.987	.038	.876	26.064*	.000

* Significant at .05 level.

From Table 3, an r-value of .876 was observed, giving an r-squared value of .767. This means that about 76.7% of the total variance in staff and students performance in the university is accounted for, by the varieties in teachers' teaching experience. The f-value (.000) associated with the computed f-value (679.337) is less than .05. Consequently the null hypotheses were rejected. This means that the use of artificial intelligent (AI) in teaching and learning in higher education significantly predict staff and students performance in the university, with only the regression coefficient (.987) making significant contribution in the production model (t=26.064, P= .000≤.05) with the contribution of the regression constant (-.084) being negative though not significant (t=-.148, P=.883≤.05).

DISCUSSION OF FINDINGS

The results of this study shows that there is a significant influence of utilization of artificial intelligent (AI) in teaching and learning in higher education for global best practices and the use of artificial intelligent (AI) in teaching and learning in higher education significantly predict staff and students performance in the university.

Mircea, (2023) study on Impact of Artificial Intelligence on Education found out that while no one knows how AI will shape the future, it can all agree on one thing: AI is one of the most important technologies in the world today that is already at work in our everyday lives, influencing everything from online dating to our

shopping habits. But how will this technology affect work in the future? What will be the result? A permanent class of people who can not find work because their jobs have been automated? An economy where super-intelligent computers compete to one day take over the planet? What is happening to people, how do AI transform and adapt our education systems to be consistent with the digital age? According to research, by the mid-2030s, one third of all employees will be exposed to the risk of being automated, and the labor force segment most likely to be affected is people with a low level of education. The typical scenarios of artificial intelligence education applications include intelligent tutor-assisted personalized teaching and learning, intelligent assistants such as educational robots, children's partners at home, intelligent assessment, mining and intelligent analysis of educational data, learning analysis and learning, digital portraits, and etcetera. Literature studies show that artificial intelligence technology in education has been used in at least 10 aspects: the (i) automatic grading system, (ii) interval reminder, (iii) teacher's feedback, (iv) Virtual teachers, (v) personalized learning, (vi) adaptive learning, (vii) augmented reality / virtual reality, (viii) accurate reading, (ix) intelligent campus and (x) distance learning.

According to Mahendra (2023) in Mircea, (2023), found out that AI can be used to create tutorials and interactive virtual assistants, systems that can answer students' questions, provide additional explanations, and guide students in real-time through the learning process. Thus, through tutorials and virtual assistance students can benefit from additional support and learn at an individualized pace receiving real-time guidance to support the learning process.

Liu, Salmiza, Huang, Syed and Syed, (2020) study a review of the Application of Artificial Intelligence in Education. The development of artificial intelligence technology, more and more artificial intelligence products are being applied to the education industry. Many countries in the world have also formulated relevant policies to promote the application of artificial intelligence technology in education. This paper briefly discusses the history of the development of artificial intelligence technology and its application in the field of education including teaching and learning innovations, effective teaching and learning approaches and smart campus life styles. This research analyzes the changes brought by artificial intelligence to education from different application aspects. It is suggested that, in order to better promote the application of artificial intelligence in education, there are three important aspects that must be considered at: the technical level; the model level and the practical level. In 2019, the International Conference on Artificial Intelligence and Education was held in Beijing (Xu, 2019) in Liu, Salmiza, Huang, Syed and Syed, (2020). The artificial intelligence field experts from all around the world gathered at the event to have a discussion and brainstorming session regarding the topic. It is a fact that Artificial Intelligence has now been implemented in various industries, stimulating transformation in social development and economic growth, leading to changes in mankind's productivity, lifestyle and even learning styles. Recently, UNESCO officially released the "Beijing Consensus-Artificial Intelligence and Education", suggesting that all countries should formulate corresponding policies and explore the effective strategies and practices the implementation of artificial intelligence to promote educational innovation (Huang, 2019) in Liu, Salmiza, Huang, Syed and Syed, (2020). Education has high potential to advocate the development of human society with the in-depth integration of artificial intelligence. The United States, Singapore, India are identified as the leading countries who have successively launched new education reform strategies for the future and relevant policies and regulations are constantly formulated to design a blueprint for the smart education development in their countries (Parker, 2018) in Liu, Salmiza, Huang, Syed and Syed, (2020).

CONCLUSION AND RECOMMENDATIONS

The study concludes that, there is a significant influence of utilization of artificial intelligent (AI) in teaching and learning in higher education for global best practices and the use of artificial intelligent (AI) in teaching and learning in higher education significantly predict staff and students performance in the university. Based on the conclusion, it was recommended that since there is a significant influence of utilization of artificial intelligent (AI) in teaching and learning in higher education for global best practices, university staff and students should always make use of AI and the university management should put in place AI facilities to increase staff and students performance in the university.

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