An Assessment of the Knowledge and Usage of Artificial Intelligence (AI) For Academic Activities among Nigerian Undergraduates

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ABSTRACT

The study investigated the knowledge and use of Artificial Intelligence (AI) for academic exercises by undergraduates in Public and Private universities in Nigeria. The design for this study is survey, while a sample of 300 students were randomly selected through simple random sampling. A 20-item 4-point Likert scale instrument was used to collect data from the respondents. The instrument was validated through experts' constructive criticisms and was found to be valid by content. Also, Cronbach's alpha was used to assess the internal consistency of the items which yielded 0.81 index. The findings from the study revealed that there is no significant difference in the knowledge and usage of AI for academic exercises by male and female undergraduates and there is no significant difference in the knowledge and use of AI for academic exercises by undergraduates in public and private universities. Recommendation from the study include the need for universities and other tertiary institutions of learning to create more awareness on the use of AI tools and the teachers should task the students to use AI tools to carry out assignments and other academic activities.

Keywords: Artificial Intelligence (AI), Computers, undergraduates, Education, Academic activities

INTRODUCTION

Nature has so much endowed humans race with the ability to develop and create invention. One of such inventions or scientific breakthrough has brought about computer which has brought about human and technological advancement in Education, Medicine, Arts, Culture, Science and Technology etc and lately Artificial Intelligence (AI). This new invention (AI) has brought about a paradigm shift in virtually all spheres of human endeavour. AI is therefore seen as the scientific simulation of human intelligence in machines for learning, reasoning and problem solving. AI is also a specialised area in science and technology that is concerned with computers and machines that can reason and learn in a manner that would normally require human intelligence making it being able to make predictions or creations based on data input and learning.

In teaching and learning, Guanah & Oribhabor (2023), observed that education can become more personalised and adaptive with the integration of AI, thus catering for the unique requirements of each student and that vast amount of data can be collected and analysed. Garcia et al (2017), and Costa et al (2017) in a separate study on AI reported that AI algorithm and educational robots have become an integral part of learning management and training system that can provide support for a wide array of teaching and learning activities. 'Duolingo', a language learning platform can be used to improve learner experiences. (Bicknell et al, 2023), while iflytek is used for intelligent assessment systems specifically tailored for various grading exercise including the National College Entrance Examination in China (Iflytek, 2024).

Also, Leh (2022) reported that AI-powered learning management systems (LMS) such as Absorb LMS and Decebo offers multiple AI capabilities to support teaching and learning activities, such as intelligent content creation, administrative task automation, and personalised learning. While Belpaeme & Tanara (2020)

submitted that SoftBank Robotics Nao and Pepper robots are developed to serve language teaching social robots. On the attitude to the use of AI, Guanah (2023) reported in his study on the knowledge and perceptions of the use of Artificial Intelligence that most of the respondents have a low level of knowledge in use of AI. On the attitude of student to the use of AI, Alimi, et al (2021) found out that majority of the university students are not aware of the use of the AI for learning, while Businessoluton (2023) observed and reported that 43% of college students in the United States America use AI tools like ChatGPT and half of instructor employ AI to develop their lessons. Guanah (2023), in a study on the Knowledge and Perception of the Use of Artificial Intelligence submitted that most of the respondents (students) have a low level of knowledge in the use of AI. In a similar study, Gupta & Snigdh (2023) noted that AI data-driven approach allows for the delivery of customised content, recommendations and feedback, thus, providing students with a tailored learning experience that maximises their potential for success.

Statement of the Problem

Artificial Intelligence (AI) has come and arrived as a means through which information is disseminated for development in science, technology, commerce, culture, medicine, education, arts and other areas of discipline. Against this backdrop, there is need assess undergraduates knowledge and the use of AI with a view to finding out the students readiness level in the use of AI for assignment, projects, tests, reading and other task assigned to students and equip them with the knowledge and use of various AI tools where and when necessary.

Objectives of the Study

The following objectives are set for the study:

- To find out if there is any significant difference in the knowledge and use of AI for academic activities between male and female undergraduates.
- To find out if there is a significant difference in the knowledge and use of AI for academic activities between undergraduates in public and private universities.

Hypotheses

The following hypotheses were tested for the study:

HO1: There is no significant difference in the knowledge and use of AI for academic activities between male and female undergraduates.

HO2: There is no significant difference in the knowledge and use of AI for academic activities by undergraduates who attend public and those who attend private universities.

METHODOLOGY

Research Design

The research design for this work is survey because data was collected in raw form from the respondents.

Population and Sample

The population for the study was 600, comprising of 200L undergraduates from two universities, one public and one private. From this population, 300 respondents were randomly selected through a simple random sampling technique.

Instrumentation

The instrument used for data collection is a 20-item 4-point Likert scale instrument. This instrument was validated when copies of it were given to 5 experts in measurement and evaluation for constructive criticisms

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and found the instrument to be valid by it's content. Also, Cronbach's alpha was used to assess the internal consistency of the items in the questionnaire which produced 0.81 reliability index.

Data Analysis

Data collected for this study was analysed with use of t-test statistics to test the two hypotheses at 0.05 level of significance which was computed on SPSS.

RESULTS

Hypothesis One

There is no significant difference in the knowledge and use of AI for learning activities between male and female undergraduates.

Table one

Variables	N		S.D	t-obs.	t-crit.	Df	P
Males	150	4.519	0.50				
Females	150	4.482	0.58	0.88	1.70	298	N

The above table shows that t-critical =1.70 is greater than t-observed 0.88 i.e t-critical > t-observed. The null hypothesis is therefore not accepted i.e. there is no significant difference in the knowledge and use of AI for academic activities between male and female undergraduates. The reason for this might be as a result of the fact that both male and female students undergo similar experiences in information and communication technology (ICT) and AI because they live in the same or similar environment and share many things in common. This finding was supported by Businesssolution (2023)

Hypothesis two

There is no significant difference in the knowledge and use of AI for learning activities by undergraduates who attend public and other who attend private universities.

Table two

Variables	N		S.D	t-obs.	t-crit.	Df	P
Public	150	4.408	0.57				
Private	150	4.404	0.58	0.06	1.70	298	N

The analysis from table two shows that t-critical 1.70 is greater than t-observed 0.06 i.e t-critical > t-observed. Thus, the null hypothesis is therefore accepted, which means that there is no significant difference in the use of AI for academic activities between undergraduates in the public and private universities. The reason for this might be that undergraduates in both private and public universities are taught with the same curriculum; they enjoy friendship among themselves, and that their experiences in secondary schools are similar.

CONCLUSION

From this study, it is evidently clear that both male and female undergraduates possess AI knowledge and use it for research activities in similar ways, and that undergraduates in both public and private universities also possess and exhibit AI knowledge with which they carry out various academic activities such as assignments, problem solving etc.

RECOMMENDATIONS

In view of the findings from the study, the following recommendations are given:

- Universities and other tertiary institutions of learning should create more awareness on the knowledge and use of AI for academic work.
- The school environment should be equipped with Wi-Fi so as to make internet services easily accessible to the students.
- Student should be well enlightened on the use of various AI tools such as ChatGPT, iflytek, and Duolingo etc.
- Teachers should task students to use various AI tools platforms in addition to other platforms to carry out assignments and other academic tasks.

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