# Assessing the Benefits and Challenges Facing Artificial Intelligence Use by Lecturers in South-West Colleges of Education, Nigeria

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**Abstract**

*This study examined the benefits and challenges facing artificial intelligence use by lecturers in South-west Colleges of Education, Nigeria. A descriptive research design of survey type was utilised. One thousand eight hundred and eighty-five lecturers in the eight public Colleges of Education in South-west, Nigeria formed the study population. Three states and two public Colleges of Education in each of the sampled states were selected purposively. Three hundred lecturers were selected proportionately. Benefits and Challenges Facing Artificial Intelligence Use by Lecturers Questionnaire, validated and tested for reliability with an index of 0.82 was utilised collect data for the study. Percentage and t-test were used analyse the data. The study found that that artificial intelligence use, among other things, helped lecturers to have access to many materials to prepare their lecturer notes, paraphrase ideas borrowed from other scholars to support their researches, enhance their grammatical construction and carry out effective assessment of students; while challenges facing artificial intelligence use by lecturers were poor internet, poor power supply, inadequate technological skills, non-readiness of lecturers to adapt to change and lack of awareness. The study concluded that lecturers derive many benefits through artificial intelligence use and this helps to enhance their job performance. It was recommended, among others, that the managements of Colleges of Education in South-west, Nigeria should periodically and constantly organise lecture,*

*workshop, seminar, and symposia for lecturers on artificial intelligence, to acquire adequate skills and knowledge to utilise it to enhance their job performance.*

**Keywords:** Assessing, Benefits, Challenges, Artificial Intelligence, Use

## Introduction

The use of artificial intelligence (AI) in all facets of human life, most especially education, has been a welcome development. Through the use of artificial intelligence, thinking faculty of lectures is being guided further to have access to ideas produced by machines, which are needed for not only the process of imparting knowledge and skills to students, but also the aspects of conducting cut-edge researches and community services delivery. Examples of the artificial intelligence which support lecturers in the discharge of effective services include QuillBot, Grammarly, ChatGPT, Teachally, Speachling, Microsoft Bing, Wordtune, Tunitin, Kahoot and Copilot. Ogunode and Ukozor (2023) elucidated artificial intelligence as programs crafted with brain that looks like that of human beings and organised in the images of computers, robots or other mechanisms to assist in rendering different kinds of task or service to boost the political, social, and economic development in the society. Nmadu and Eze (2025) opined that artificial intelligence is such a gadget of contemporary technologies which is assisting everything to progress faster than ever before. Kaplan and Haenlein (2019) posited that artificial intelligence is the cleverness displayed by machines; predominantly computer systems.

Chen (2020) submitted that artificial intelligence has a boundless capability in systematising and accelerating managerial responsibilities for academic staff. It can automate the grading of assignments, assess essays which give lecturers opportunity to have ample time with learners one-on-one and assist in sourcing ideas for teaching. Halper and O'Donovan (2024) maintained that artificial intelligence is a set of machineries supporting computers to discharge different innovative functions, comprising the capacity to see; transform the vision to apprehend; interpret vocalised as well as transcribed languages; scrutinise data; and provide conclusions and recommendations. As elucidated Canbek and Mutlu (2016), artificial intelligence is seen as a veritable instrument for combating different challenges in the teaching process and allowing lecturers to operate at their own pace. Keppler and Snyder (2024) maintained that artificial intelligence, such as ChatGPT and the likes, is used by lecturers in various ways which comprise preparation of lesson plans and continuous assessment. When lecturers key into the use of artificial intelligence, their job performance is likely to be effective.

Adebayo (2024) affirmed that artificial intelligence boosts the productivity of lecturers through data-based modelling skills, knowledge of intelligent user interfaces skills, problem-solving skills, acquisition of programming skills, computing skills and deep learning skills. It also helps lecturers in terms of research and enabling new teaching methods and approaches. As revealed by the findings of Ugosor et al. (2025), artificial intelligence played important role for lecturers in tertiary institutions ranging from assessment of students, teaching activities; administrative activities; mentoring activities to the conduct of research. Ogunode et al. (2023) submitted that Nigerian lecturers who are able to adopt and effectively embrace the use of AI could be able to advance effectiveness of their teaching, earn the benefits of learners' active participation and engagement, and provide practical experiences which could enhance learning. Judith et al. (2025) found in their study that artificial intelligence assisted lecturers in carrying out various

duties in research, provision of community services to host communities and teaching. Artificial intelligence also helped leaners to perform different academic activities such as studying, conduct of projects and attending lecturers online.

Yakubu (2025) posited that the benefit of artificial intelligence to education system, especially lecturers is complex and vast, encapsulating intelligent tutoring systems, improved administrative efficiency, individualised learning experiences and increased student engagement. It enhances effective management of resources that meet varied lecturers and student needs and improve pedagogical approaches. Igbokwe (2023) lamented that one of the challenges facing lecturers in the use of artificial intelligence is dearth of technical know-how and resources. Artificial intelligence involves specific knowledge and skills which are lacking in many lecturers of tertiary institutions in Nigeria. Manafa and Onyekaba (2025) asserted that power supply in many Nigerian communities is not stable. This challenge hinders effective deployment of artificial intelligence by lecturers in public tertiary institutions in Nigeria. Instability in the supply of power is seriously hampering effective integration of artificial intelligence into teaching and learning by lecturers. Manafa and Onyekaba (2025) submitted that high cost of maintenance due to poor funding of education, has hindered the use of AI in many educational institutions in Nigeria. AI facilities are very costly and involve huge capital in terms of maintenance. This needs to be tackled by government to facilitate its effective use among lecturers.

Also, the findings of the study conducted by Okeke (2025) revealed that challenges facing effective use of artificial intelligence were shortage of financial resource, high cost of artificial intelligence hardware, software, licensing fee and training for staff; and technological challenges such as insufficiency of expertise, difficulties in integration and algorithmic prejudice. Nwaimo et al. (2024) posited epileptic supply of electricity, unstable internet connectivity, and obsolete information communication technologies facilities in Nigerian tertiary institutions constitute serious challenges to the use of artificial intelligence by lecturers. As found by the study conducted by Olajide and Victor (2021), significant difference did not existence in the opinions of the male and female lecturers on impacts of artificial intelligence to lecturers job performance in public universities in Lagos State, Nigeria. Aderemi (2022) found that there was no significant difference in the benefits of artificial intelligence to academic staff's job performance in tertiary institutions in Nigeria based on gender. Onabanjo (2022) discovered that significant difference did not exist on the challenges facing the use of AI based on lecturers' gender in polytechnics in Ondo State. Williams (2022) affirmed that that are challenges facing Nigerian lectures in effective use of artificial intelligence to support their effective delivery of their services and these challenges are acknowledge by both male and female lecturers.

**Statement of the Problem**

Performance of the tripartite mandate of teaching, research, and community service is very key to the attainment of the goals of educational institutions. However, the way some lecturers perform the duties in South-west Colleges of Education, Nigeria seems ineffective and one of the ways through which their job performance could be enhanced is effective utilisation of artificial intelligence. Based on the information gathered from some colleagues, in addition to the ones made available to the researcher via the interaction with colleagues in other Colleges of Education in South-west, Nigeria, the use of artificial intelligence by lecturers in the

institutions seems low. The reason could be that they do not know its holistic benefits to their job performance or they are being hampered to effectively use it, due to some factors like epileptic power, poor awareness and resistance to change which constitute stumbling block.

Some studies which are akin to this study have been conducted. Adebayo (2024) examined artificial intelligence and lecturers' effectiveness in Ogun state-owned Universities, Ogun State of Nigeria. Judith et al. (2025) conducted a study on the impact of AI on university administration, job performance of academic staff and academic performance of students in university education in Nigeria. Manafa and Onyekaba (2025) investigated the utilisation of AI in the management of tertiary institutions in Nigeria. Okeke (2025) researched on the factors militating against effective adoption of artificial intelligence among lecturers in higher institutions in Rivers State, Nigeria. However, the areas of focus of the studies highlighted above differed from that of this study, which assessed the benefits and challenges facing artificial intelligence use by lecturers in South-west Colleges of Education, Nigeria. Therefore, is the academic gap which was observed and demanded filling through the conduct of this study.

## Objectives of the Study

The study:

i. examined the benefits of artificial intelligence use by lecturers;
ii. determined the challenges facing artificial intelligence use by lecturers;
iii. found out the difference in the benefits artificial intelligence use by lecturers based on gender; and
iv. assessed the difference in the challenges facing artificial intelligence use by lecturers in South-west Colleges of Education, Nigeria based on sex.

## Research Questions

i. What are the benefits of artificial intelligence use by lecturers?
ii. What are the challenges facing artificial intelligence use by lecturers?

## Research Hypotheses

**$Ho_1$:** There is no significant difference in the benefits of artificial intelligence use by lecturers based on sex.
**$Ho_2$:** There is no significant difference in the challenges facing artificial intelligence use by lecturers based on sex.

## Methodology

The researcher used descriptive research design of survey type to carry out the study. One thousand eight hundred and eighty-five lecturers in the eight government-owned Colleges of Education (CoEs) in South-west, Nigeria constituted population of the study. This geo-political zone had six states as of the time the study was carried out. Three states, Osun, Oyo and Ogun, as the only states with federal and state CoEs in the zone were selected purposively. Purposive sampling technique was also used to select all the six CoEs (that is, two in each state) in the three states. Out of the 1,364 lecturers in the six sampled institutions, proportionate sampling

technique was used to select 300, using Krejcie and Moragan (1970) table as a guide. Information about the population and the sample were provided in Table 1. Self-designed questionnaire captioned 'Benefits and Challenges Facing Artificial Intelligence Use by Lecturers Questionnaire' (BCFAIULQ) was used in the process of eliciting information from the study participants. The instrument had three sections (A with bio-data, B with items on the benefits while C focused on the challenges facing artificial intelligence use by lecturers).

The instrument was premised on Likert-type scale ranging from Strongly Agree adjudged 4, Agree rated 3, Disagree ranked 2 and Strongly Disagree given 1. With the help of three experts in the field education, validation of the instrument was ensured. All the professional inputs given by the experts were taken into consideration before the production of final draft of the instruments administered to the participants. Twenty-five copies of the instrument were administered to some lecturers not captured in the sample of the study. Cronbach's Alpha was ustilised for data analysis and reliability coefficient of 0.82 was attained. This gave an affirmation to the reliability of the instrument. Research questions were answered via the use of mean and standard deviation while hypothesis testing was carried out via the use of t-test. In determining the benchmark for decision making, mean scores: 1.00 to 2.49 were considered Disagree while 2.50 and above were considered Agree. Three hundred copies of questionnaire were distributed, but 274 copies retrieved were used for analysis.

**Table 1**

*Population and Sample of the Study*

| S/N | Institution | Population | Sample |
|---|---|---|---|
| 1. | Federal College of Education, Iwo, Osun State | 117 | 26 |
| 2. | Osun State College of Education, Ila | 148 | 33 |
| 3. | Federal College of Education (Special), Oyo State | 564 | 124 |
| 4. | Oyo State College of Education, Lanlate | 103 | 23 |
| 6. | Federal College of Education, Abeokuta, Ogun State | 243 | 53 |
| 7. | Sikiru Adetona College of Education Science and Technology, Omu-Ajose, Ogun State | 189 | 41 |
| | **Total** | **1,364** | **300** |

## Results

**Research question 1:** What are the benefits of artificial intelligence use to lecturers?

**Table 2**

*Benefits of Artificial Intelligence Use to Lecturers*

| S/N | Items | $\bar{X}$ | SD | Decision |
|---|---|---|---|---|
| | Artificial intelligence helps lecturers to: | | | |
| 1. | get adequate literature for their researches | 3.71 | 1.34 | Agree |
| 2. | have access to many materials to prepare their lecturer notes | 3.52 | 1.28 | Agree |
| 3. | paraphrase ideas borrowed from other scholars to support their researches | 3.29 | .96 | Agree |
| 4. | enhance their grammatical construction | 3.82 | 1.41 | Agree |
| 5. | carry out effective assessment of students | 2.89 | .75 | Agree |
| 6. | develop public speaking skills | 3.44 | 1.26 | Agree |
| 7. | reduce the stress of rigorous thinking | 3.19 | 1.13 | Agree |
| 8. | multi-task, thereby enhancing effective time management | 3.53 | 1.44 | Agree |

**$\bar{X}$ : 1.00-2.49 = Disagree; 2.50-4.00 = Agree**

Table 2 showed the benefits of artificial intelligence use by lecturers in South-west Colleges of Education, Nigeria. As shown in the table 1, items 1, 2, 3, 4 and 5 (get adequate literature for their researches, have access to many materials to prepare their lecturer notes, paraphrase ideas borrowed from other scholars to support researches and enhance their grammatical construction) had mean scores of 3.71, 3.52, 3.29 and 3.82 respectively; hence the decision taken on them was 'Agree'. Furthermore, 5, 6, 7 and 8 (carry out effective assessment of students, develop public speaking skills, reduce the stress of rigorous thinking and multi-task, thereby enhancing effective time management) had mean scores of 3.29, 3.44, 3.19 and 3.53 respectively; hence, the decision taken on them was 'Agree'.

**Research question 2:** What are the challenges facing artificial intelligence use by lecturers?

**Table 2**

*Challenges Facing Artificial Intelligence Use by Lecturers*

| S/N | Items | $\bar{X}$ | SD | Decision |
|---|---|---|---|---|
| 1. | Poor internet | 3.28 | 1.10 | Agree |
| 2. | Poor power supply | 3.69 | 1.42 | Agree |
| 3. | Inadequate technological skills | 3.41 | 1.37 | Agree |
| 4. | Non-readiness of lecturers to adapt to change | 3.75 | 1.48 | Agree |
| 5. | Lack of awareness | 3.01 | .96 | Agree |

$\bar{X}$ **: 1.00-2.49 = Disagree; 2.50-4.00 = Agree**

Table 3 presented the challenges facing artificial intelligence use by lecturers in South-west Colleges of Education, Nigeria. As shown in the table, items 1, 2, 3, 4 and 5 (poor internet, poor power supply, inadequate technological skills, non-readiness of lecturers to adapt to change and lack of awareness) had mean scores of 3.28, 3.69, 3.41, 3.75 and 3.01 respectively; hence the decision taken on them was 'Agree'.

**$H0_1$:** There is no significant difference in the benefits of artificial intelligence use to lecturers based on sex.

**Table 4**

*Benefits of Artificial Intelligence Use by Lecturers Based on Sex*

| Gender | N | $\bar{X}$ | SD | t-cal. | p-value | Decision |
|---|---|---|---|---|---|---|
| Male | 151 | 3.34 | 1.01 | | | |
| | | | | 2.56 | .064 | $Ho_1$ Acceptance |
| Female | 123 | 3.50 | 1.39 | | | |

Table 4 showed 2.56 as the calculated t-value, 0.16 as the mean difference and 0.64 as the p-value which is greater than the level of significance, 0.05. As a result of this, 'Acceptance' was the decision taken on the null hypothesis one. This connotes that there was no significant

difference in the benefits of artificial intelligence use to lecturers in South-west CoEs in Nigeria based on sex.

**$Ho_2$:** There is no significant difference in the challenges facing artificial intelligence use by lecturers based on sex.

**Table 4**

*Challenges of Artificial Intelligence Use by Lecturers Based on Sex*

| Gender | N | $\bar{X}$ | SD | t-cal. | p-value | Decision |
|---|---|---|---|---|---|---|
| Male | 151 | 3.32 | 1.11 | | | |
| | | | | 2.47 | .061 | $Ho_2$ Acceptance |
| Female | 123 | 3.54 | 1.43 | | | |

Table 4 presented 2.47 as the calculated t-value, 0.22 as the mean difference and 0.61 as the p-value which is greater than the level of significance, 0.05. As a result of this, 'Acceptance' was the decision taken on the null hypothesis two. This connotes that there was no significant difference in the challenges facing artificial intelligence use by lecturers in South-west CoEs, Nigeria based on sex.

**Discussions**

The findings of the study revealed that artificial intelligence use by lecturers in South-west CoEs, Nigeria helped lecturers to have access to many materials to prepare their lecturer notes; paraphrase ideas borrowed from other scholars to support researches; enhance their grammatical construction; carry out effective assessment of students; develop public speaking skills; reduce the stress of rigorous thinking; and multi-task, thereby enhancing effective time management. This finding agrees with Salman (2022) found that AI use helps lecturers to generate materials for lecturers, derive tips for lesson delivery, edit their works for publication, evaluate students and give them instant feedback, discharge community services. This finding supports the finding of Judith et al. (2025) which revealed that artificial intelligence supported lecturers to effectively carry out research, teach, and render community services to host communities. This finding agrees with the position of Igbokwe (2023) that lecturers could be assisted to effectively perform all the activities involved in teaching via the use of AI.

The findings of the study showed that the challenges facing artificial intelligence use by lecturers in South-west CoEs, Nigeria were poor internet, poor power supply, inadequate technological skills, non-readiness of lecturers to adapt to change and lack of awareness. This finding is in consonance with the finding of Alarape (2023) that epileptic power supply, poor technological know-how, unstable network and resistance to change were the challenges facing

lecturers' use of AI in public polytechnics in Ogun State, Nigeria. This finding also confirms the finding of Olajide and Victor (2021) that lecturers derive benefits in the use of AI in public universities in Lagos State, Nigeria.

The study found that there was no significant difference in the benefits of artificial intelligence use to lecturers in South-west CoEs in Nigeria based on sex. This study supports the finding of Alarape (2023) that there was no significant difference in the opinion of male and female lecturers were not significantly different in the benefits of AI to their job performance. The finding corroborates the finding of Salman (2022) that was no significant difference in the benefits of artificial intelligence use to lecturers based on gender.

The findings of this study revealed that there was no significant difference in the challenges facing artificial intelligence use by lecturers in South-west Colleges of Education, Nigeria based on sex. This finding supports the finding of Onabanjo (2022) that there was no significant difference in the opinions of male and female lecturers on the challenges of artificial intelligence use in polytechnics in Ondo State, Nigeria. This finding corroborates the finding of Williams (2022) that there was no significant difference in the opinions of male and female lecturers on challenges faced in the use of artificial intelligence in private universities in Oyo State, Nigeria.

## Conclusion

The study concluded that artificial intelligence use helped lecturers to have access to many materials to prepare their lecturer notes; paraphrase ideas borrowed from other scholars to support researches; enhance their grammatical construction; carry out effective assessment of students; develop public speaking skills; reduce the stress of rigorous thinking; and multi-task, thereby enhancing effective time management. The challenges facing artificial intelligence use by lecturers were poor internet, poor power supply, inadequate technological skills, non-readiness of lecturers to adapt to change and lack of awareness. Also, lecturers were not significantly different in their opinions on benefits and challenges in the use of artificial intelligence by lecturers.

## Recommendations

The study recommended that:

i. the managements of CoEs in South-west, Nigeria should periodically and constantly organise lecture, workshop, seminar, and symposia for lecturers on AI, to acquire adequate skills and knowledge needed to utilise it to enhance their job performance.
ii. Nigerian government should be more committed to the improvement of power stability, to help lecturers adequately power their gadgets to be used for maneuvering artificial intelligence to enhance their job performance; and
iii. service providers should continually ensure that network is strong across all the states in South-west, Nigeria, to help lecturers have access to the internet and extensively use artificial intelligence to boost their job performance.

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