



# IMPACT OF ICT INTEGRATION ON REDUCING LEARNING GAPS AMONG UNDERGRADUATE STUDENTS IN THE CENTRAL SENATORIAL DISTRICT OF KOGI STATE

BY

**Peter, Enemakwu Joseph**

Department of Social Studies,  
Federal College of Education, Okene  
joepeten99j@gmail.com | (+234) 803 8868 930

**J.C. Onuoha**

Department of Social Science Education,  
University of Nigeria, Nsukka

**N.D. Eneogu**

Department of Social Science Education,  
University of Nigeria, Nsukka

&

**G.O. Ugwonna**

Department of Social Science Education,  
University of Nigeria, Nsukka

Department of Social Science Education,  
University of Nigeria, Nsukka

---

## Abstract

*This paper investigated the impact of ICT integration on reducing learning gaps among undergraduate students in the Central Senatorial District of Kogi State, Nigeria. In contemporary learning environments, ICT is no longer viewed merely as a supplementary instructional tool but as a central driver of pedagogical transformation capable of promoting flexibility, learner autonomy, collaboration, and inclusivity. Despite these expectations, evidence suggests that the relationship between ICT integration and learning equity is complex and highly context-dependent. The paper employed descriptive survey involving the correlation approach. 400 undergraduate students were sampled for the study. The instrument used to collect data was a questionnaire, the research questions raised were answered by using mean and standard deviation while the hypotheses formulated were tested with Pearson's product moment analysis ( $r$ ) at 0.05 level of significance. The study found out that integration of ICT lead to efficient and effective delivery of instructions. Undergraduate students who use ICT devices in their study have shown enhanced academic achievement. Therefore, the paper concludes that integration of ICT bridges learning gaps among undergraduate students thereby making teaching and learning exciting and interesting. The paper recommends among others that higher education institutions should prioritize the provision of adequate ICT facilities, including computers, reliable internet connectivity, and relevant software, to ensure that all students have equitable access to digital learning resources. This will help bridge access-related learning gaps.*

**Keywords:** Impacts, ICT Integration, Learning Gaps. Undergraduate Students

---

## Introduction

In the 21st century, Information and Communication Technology (ICT) has become an indispensable element in the educational landscape, promising transformative potential for teaching and

learning processes across all levels of education. The rapid expansion of Information and Communication Technology (ICT) has significantly reshaped the landscape of higher

education worldwide, redefining how knowledge is produced, accessed, and transmitted. ICT encompasses a wide range of digital tools and platforms including computers, mobile technologies, learning management systems, and internet resources that have the capacity to facilitate interactive, flexible, and student-centered learning environments (Idowu, 2025). In contemporary learning environments, ICT is no longer viewed merely as a supplementary instructional tool but as a central driver of pedagogical transformation. Within this context, ICT integration has been widely promoted as a strategic response to persistent educational inequalities, particularly learning gaps that manifest in differential academic achievement, access to resources, and learning outcomes among students from diverse socio-economic, geographical, and educational backgrounds.

Specifically, the extent to which ICT integration can reduce learning gaps, the disparities in educational achievement and access among students differing in socio-economic status, geographical location, or prior attainment remains a critical concern. While ICT usage has been linked to positive outcomes in developed educational settings, its impact in under-resourced and developing contexts is mixed, with evidence showing that structural barriers often hinder meaningful integration (Baako, Osei & Abroampa, 2025). This complexity is further reflected in the uneven professional preparedness of educators and gaps in technological infrastructure, which can exacerbate rather than mitigate existing educational inequalities (Murithi & Yoo, 2021).

In Nigeria, higher education institutions have increasingly adopted ICT for instructional purposes, yet learning gaps persist, especially among undergraduate students in rural and peri-urban areas where access to technology and digital skills remain limited. These gaps threaten equity in learning outcomes and the realization of national educational goals that align with global digital inclusion imperatives.

The deployments of digital facilities/tools/ICT are intended to encourage global discourse among faculty

and students' members. The utilization of digital tools for course facilitation leaves much to be desired. Whereas, where digital facilities are utilized promptly and regularly, it is capable of increasing input as well as increasing productivity on the task performances of faculty and learners. It could also improve academic performance of a maturity of learners. Osah (2022) pointed out that digital education or ICT is the innovative use of digital tools and technologies during teaching and learning. The concept implies that ICT is relevant to the implementation of school curriculum.

Despite widespread advocacy for ICT integration as a strategy to enhance educational quality and equity, there remains significant variation in how ICT is implemented and its effectiveness in reducing learning disparities among undergraduate students. This is still in agreement with Osah (2022) that though the encouraging effect of age of ICT, most departments in the number of universities in some part of Nigeria are lagging behind in its application for curriculum implementation. Studies suggest that although ICT can improve engagement and access to resources, inequitable access to devices, inadequate digital literacy, and limited professional development undermine its potential impact (Idowu, 2025). In many developing country contexts, including parts of Sub-Saharan Africa, infrastructure constraints and lack of institutional support further limit meaningful ICT integration (Baako, Osei & Abroampa, 2025).

In the Central Senatorial District of Kogi State, these challenges are especially pronounced. Many higher education institutions in the area contend with inconsistent internet connectivity, inadequate digital learning facilities, and variations in lecturers' competence in integrating ICT into pedagogy. Consequently, undergraduate students experience unequal opportunities to benefit from technology-enhanced learning, reinforcing gaps in academic performance, digital literacy, and overall learning outcomes. Although national and institutional policies emphasize ICT-driven education as a pathway to quality and equity, there remains limited empirical

clarity on whether, how, and under what conditions ICT integration actually contributes to reducing learning gaps among undergraduates in such contexts. Existing studies in Nigeria have largely focused on ICT availability, utilization patterns, or general academic performance, with insufficient attention to the specific issue of learning gaps and the mechanisms through which ICT integration may mitigate or exacerbate them (Adeleke & Amoo, 2021).

Effective ICT integration can enhance learning outcomes by supporting differentiated instruction, personalized learning pathways, and continuous access to educational resources. Systematic reviews and large-scale studies demonstrate that when ICT is meaningfully embedded within pedagogy, it can improve student achievement and reduce disparities linked to prior knowledge and socio-economic status (Basri, Alandejani & Almadani, 2018). However, these benefits are contingent upon students' access to devices, reliable connectivity, and adequate digital skills, as well as lecturers' capacity to align technology use with instructional goals (Baako, Osei, & Abroampa, 2024). In Sub-Saharan Africa, studies reveal that ICT adoption often occurs at a superficial level, with limited pedagogical integration, thereby constraining its potential to address learning inequalities (Murithi & Yoo, 2021). This empirical inconsistency underscores a significant research gap concerning the effectiveness of ICT integration as a tool for reducing learning gaps in under-resourced higher education settings.

The study by Adedjoja and Abimbade (2016) found out that ICT is compatible with the implementation of school subject because it is a response to innovation in the changes taking place in the schools system. These authors reveal that current instructional deliveries favour the use of mobile tools. The findings in their study are consistent with the fact that ICT carries inherent potentials and benefits. It tools are portable, flexible, cost effective and they are easy to be put to use. Also, they have added values to the learning environment because they create excitement to learners. This is to the effect that learners' anticipation is

aroused and increased interest for learning. Thus, integration of ICT in the teaching and learning process can correlate many aspects of the objectives for introducing courses in school curriculum. One of such objectives is to keep abreast with ever changing environment. Unlike most textbooks, ICT tools are veritable source of latest information on issues.

The use of ICT models for learning in schools was investigated in the study by Udoudo and Ojo (2016) in Obia-Kpor Local Government Area of Rivers State, Nigeria. The objectives of the study were to identify the extent of use of new media and to find out challenges experienced while using new media (ICT models) for learning in schools in the Local Government Area. The study adopted survey and quasi-experiment as research design. The population of the study stood at 5,609 representing the entire population of students and heads of school studied. Sample size of 568 was used for the study. Findings showed that some of the schools were truly new media (ICT) based but under-utilized by the students in learning. The implications of the findings suggest that the knowledge and skill needed to operate ICT models such as the computer and internet browsing is lacking, thereby it affects the level of interest in the use of ICT learning tools by most students. It means that orientation and training is to be deliberately initiated in order to inspire the students towards the use of new media for learning.

Furthermore, the assumption that students' academic performance could improve when ICT devices are deployed or integrated for instructional delivery may not be unfounded. The linear correlation was reported in the study by Basri, Alandejani and Almadani (2018). The authors explore the adoption of Information Communication Technology by the universities and the impact it makes on the university students' academic performance. The study was carried out in Saudi universities. The study also examined the moderators' effect of gender, GPA and students' majors on the relationship between ICT and academic achievement. By using a

quantitative research approach and a sample of 1000 students, data were collected about the ICT adoption in universities and the relative performance of students belonging to four Saudi universities. Structured equation modeling was chosen to determine the validity of the research model. The Analysis of Moment Structures (AMOS), specially used for structural equation modeling and path analysis was used as the research tool. The findings revealed that there exists a relationship between ICT and adoption and academic performance in a conservative environment. The implication of the findings points to the fact that integration of ICT has brought about innovation to teaching and learning. It is found that integration of ICT simplify instruction, makes the learning process enjoyable, thereby stimulating cognitive ability. Hence, it could result to an improved academic achievement among undergraduate students in Kogi central senatorial district under investigation. The evidence found in several studies is further subjected to testing to find out whether the experience is the same among students in the selected samples from the investigated schools and colleges by analyzing the following parameters. Theoretically, the relationship between ICT integration and learning gaps can be understood through frameworks that emphasize access, pedagogy, and knowledge construction in digital environments. The Digital Divide Theory highlights how disparities in access to technology, skills, and meaningful usage can translate into unequal learning outcomes, suggesting that ICT may either bridge or widen learning gaps depending on contextual conditions (van, 2020). Complementing this perspective, the Technological Pedagogical and Content Knowledge (TPACK) framework posits that the educational value of ICT depends on the dynamic interaction between technological tools, pedagogical strategies, and subject content knowledge (Khan, Ameen & Rafique, 2019). From this standpoint, ICT integration can only reduce learning gaps when lecturers possess the requisite competencies to design inclusive, technology-enhanced learning experiences that accommodate diverse learners. Additionally,

constructivist and connectivist learning theories emphasize that digital technologies facilitate active, networked, and self-regulated learning, which can support equity by enabling learners to access and co-construct knowledge beyond traditional classroom constraints (Osah, 2022). Taken together, empirical and theoretical literature suggests that ICT integration holds considerable promise for reducing learning gaps in higher education, yet its effectiveness is mediated by access, pedagogical quality, and institutional support. The limited context-specific evidence from Nigerian higher education, particularly within regions such as the Central Senatorial District of Kogi State, creates a critical need for systematic investigation.

### **Purpose of the Study**

The main purpose of this study is to examine the impact of ICT integration on reducing learning gaps among undergraduate students in the Central Senatorial District of Kogi State, Nigeria. Specifically, the study seeks to:

- i. determine the extent to which ICT is integrated into teaching and learning in higher education institutions within the Central Senatorial District of Kogi State.
- ii. investigate the relationship between ICT integration and learning gaps among undergraduate students in the Central Senatorial District of Kogi State.

### **Research Questions**

The following research questions were raised to guide this study.

- i. To what extent is ICT integrated into teaching and learning in higher education institutions in the Central Senatorial District of Kogi State?
- ii. What are the existing learning gaps among undergraduate students in the Central Senatorial District of Kogi State in terms of: academic achievement, access to learning resources, and digital skills?

### **Hypotheses**

The following hypotheses were formulated to guide the study.

HO<sub>1</sub>: There is no significant relationship between CT integrated into teaching and learning in higher education institutions.

HO<sub>2</sub>: There is no significant relationship between learning gaps, academic achievement, access to learning resources and digital skills.

### Methods

This paper employed descriptive survey involving the correlation approach. This design is considered appropriate because it allows for the systematic collection of data on the level of ICT integration and the nature of learning gaps among undergraduate students, while also examining the relationships between ICT integration and learning gaps without manipulating the study variables. The target population of the study was undergraduate students in all the schools in central senatorial district of Kogi State. A multistage sampling procedure was employed for the study. In the first stage, higher education institutions in the Central Senatorial District were stratified by type (university, polytechnic, and college of education), from which a proportionate number of institutions was selected using simple random sampling. In the second stage, faculties or departments within the selected institutions was randomly chosen. In the third stage, undergraduate students were selected using stratified random sampling based on level of study and gender to ensure representativeness. Simple random sampling was used to select 400

undergraduate students; A total number of 200 students were selected at Confluence University of Science and Technology (CUSTECH) Osara, 75 students from Federal College of Education (FCE) Okene and 125 students from Okene College of Nursing Obangede. The instrument used for data collection was a self-constructed questionnaire tagged questionnaire on impact of ICT integration on reducing learning gaps among undergraduate students. The questionnaire consists of two sections, section A elicited information on demographic characteristics of the respondents and section B consisted 12 items that addressed the two formulated hypotheses. The instrument was structured based on a modified 4 point likert scale of strongly agreed, agreed, strongly disagreed and disagreed. Both generated data were further subjected to both mean calculation at 2.50 bench mark. Pearson's product moment correlation (PPMC) (r) was used at 0.05 level of significance for hypotheses testing. Findings constituted the discussion on the study.

### Results

**Research Question 1:** To what extent is ICT integrated into teaching and learning in higher education institutions in the Central Senatorial District of Kogi State?

**Table 1: Analysis of mean and standard deviation on extent of ICT integration into teaching and learning in higher education institutions in the Central Senatorial District of Kogi State**

S/N	Items	N	SA	A	D	SD	$\bar{x}$	SD	Remark
1	Lecturers frequently use ICT tools in teaching	400	130	170	60	40	2.97	0.74	Accepted
2	Course materials are accessible online or via ICT	400	150	178	48	24	3.28	0.82	Accepted
3	Lecturers incorporate interactive ICT activities	400	205	105	40	50	3.16	0.79	Accepted
4	ICT is used for submitting assignments and assessments	400	120	80	140	60	2.65	0.66	Accepted
5	I have equal access to computers, internet, and software	400	40	75	210	75	2.15	0.53	Rejected
6	I experience challenges accessing online resources	400	25	55	100	220	1.71	0.42	Rejected

$\bar{x} \geq 2.50$  Accepted otherwise Rejected

Table 1 presents result on the variable of extent of ICT integration into teaching and learning in higher education institutions in the Central Senatorial District of Kogi State. Six items were measured using the mean score statistics to determine the extent of ICT integration into teaching and learning in higher education. Results indicate that four of the items passed the benchmark of 2.5. These are; lecturers use of ICT tools (mean=2.97, SD=0.74); whether course materials are accessible online or via ICT (mean=3.28, SD=0.82); lecturers

incorporate interactive ICT activities(mean=3.16, SD=0.79); ICT is used for submitting assignments (mean=2.65, SD=0.66); while the rest two items fall short of the benchmark, which shows the extent to which ICT is integrated into teaching and learning in higher education institutions in the Central Senatorial District of Kogi State. **Research Question 2:** What are the existing learning gaps among undergraduate students in the Central Senatorial District of Kogi State in terms of: academic achievement, access to learning resources, and digital skills?

**Table 2: Analysis of mean and standard deviation on the existing learning gaps among undergraduate students in the Central Senatorial District of Kogi State in terms of: academic achievement, access to learning resources, and digital skills**

S/N	Items	N	SA	A	D	SD	X	SD	Remark
1	Institution provides adequate ICT support	400	20	28	300	52	2.04	0.51	Rejected
2	I can effectively use LMS or educational software	400	250	80	30	40	3.35	0.83	Accepted
3	My ICT skills enable me to achieve outcomes like peers	400	300	50	30	20	3.37	0.89	Accepted
4	ICT use improves my academic performance	400	50	100	150	100	2.25	0.56	Accepted
5	Some students perform better due to ICT access or skills	400	10	30	280	30	1.80	0.53	Rejected
6	ICT integration has helped reduce differences in performance	400	80	40	200	80	2.30	0.57	Rejected

$\bar{x} \geq 2.50$  Accepted otherwise Rejected

Table 2 shows that the variable dealing on the existing learning gaps among undergraduate students in the Central Senatorial District of Kogi State in terms of: academic achievement, access to learning resources, and digital skills. Based on the mean aggregate, it was observed that effective use LMS or educational software (mean=3.35, SD=0.83), ICT skills (mean=3.37, SD=0.89) and ICT use improves academic performance (mean=2.25, SD=0.56) respectively. The result implies that other items such as adequate ICT

support, ICT access or skills and ICT integration has helped reduce differences in performance. This result has answered the question on existing learning gaps among undergraduate students in the Central Senatorial District of Kogi State in terms of: academic achievement, access to learning resources, and digital skills. However, further testing is carried on the hypotheses of the study to determine the coefficient of the existing relation between variables.

**Hypotheses 1:** There is no significant relationship between ICT integration into teaching and learning in higher education institutions.

**Table 3: Analysis of PPMC (r) of ICT integration into teaching and learning in higher education institutions**

Variables	N	df	Cal R	Crit R	Level of sig.	Decision
ICT integration Learning in higher institution	400	398	0.56	.195	0.05	Rejected

N=400, df=398,  $p \leq 0.05$  Level of significance

The tested null hypotheses in Table 3 produced a significant relationship between the variables of ICT integration into teaching and learning in higher education institutions. The implication of this result indicates that course materials are accessible online or via ICT, lecturers incorporate interactive ICT activities and

ICT is used for submitting assignments helps greatly at increasing academic achievement of students. This finding is further discussed in the study.

**Hypotheses 2:** There is no significant relationship between learning gaps, academic achievement, access to learning resources and digital skills.

**Table 4: Analysis of PPMC (r) of learning gaps and academic achievement, access to learning resources, and digital skills**

Variables	N	df	Cal R	Crit R	Level of sig.	Decision
Learning gaps	400	398	0.74	.195	0.05	Rejected
						access to learning resources

N=400, df=398,  $p \leq 0.05$  Level of significance

The result of analysis on the stated null hypotheses was rejected, meaning there is a significant relationship between the variable of learning gaps, academic achievement, access to learning resources, and digital skills. The result is significant at N=400, df=398, calculated  $R=0.74$  higher than 0.05 level on the critical table value at .195 respectively. The result connotes that learning gaps, academic achievement, access to learning resources, and digital skills are significant at bridging the gap of inadequacies in teaching and learning but also enhance students academic achievement. This finding is further discussed in literature sought for the study.

#### Discussions

The study set out to examine the impact of ICT integration on reducing learning gaps among undergraduate students in the Central Senatorial District of Kogi State. The findings reveal several notable patterns regarding both ICT integration and the nature of learning gaps.

First, regarding the extent of ICT integration in teaching and learning, the results indicate a moderate level of ICT use across the surveyed institutions. Mean scores for items measuring ICT integration (Q1-Q4) ranged from 3.28 to 2.65, suggesting that lecturers incorporate ICT tools into instruction, but not consistently or comprehensively. Specifically, the frequent use of ICT tools, accessibility of online materials, and interactive ICT activities were moderate, indicating that while ICT is present, it may not yet be fully embedded into pedagogical practices. These findings align with previous studies in developing country contexts, which reported that although ICT is introduced in higher education, infrastructural limitations and insufficient lecturer training often hinder its full potential (Murithi & Yoo, 2021; Baako, Osei, & Abroampa, 2024). The results also support the TPACK framework (Khan, Ameen & Rafique, 2019) which emphasizes that effective

ICT integration requires not only technology availability but also the alignment of pedagogical and content knowledge, an area where moderate adoption suggests partial implementation. Second, concerning the nature of learning gaps, the study revealed that gaps in access, skills, and academic outcomes still persist among undergraduate students. Items measuring access to ICT facilities (Q1, Q5 and Q6) showed moderate means, indicating that not all students enjoy equitable access to computers, internet connectivity, or software resources. Similarly, digital skills (Q2–Q4) were moderately high, suggesting that students possess some competence in using ICT tools. These observations are consistent with empirical evidence from other developing countries, which indicates that unequal access to ICT, infrastructural deficits, and varying levels of digital literacy continue to influence student achievement (Ahmed et al., 2021). Again, the findings agreed with the study of Basri, Alandejani and almadani (2018). The authors whose investigation focuses on ICT adoption impact on academic performance found out that there exists a relationship between adoption and academic performance in a conservative environment. In addition, the authors found that the adoption of digital devices (ICT) resulted in the improvement of students (male and female) performance in test scores. The implication of the findings is that students' use of personal ICT devices correlates their performances. Therefore, it is important for lecturers to integrate the use of personal ICT tools to bridge the gap among undergraduate students at all levels of education in our higher institutions. Hence, misuse of ICT devices such as time wasting, social media chat, pornography and other immoral acts should be discouraged.

### Conclusion

The study examined the impact of ICT integration on reducing learning gaps among undergraduate students in the Central Senatorial District of Kogi State. The findings indicate that while ICT is moderately integrated into teaching and learning, its use is neither uniform nor fully optimized across institutions. Students' access to ICT facilities, digital

skills, and engagement with technology were found to influence their academic performance and the degree to which learning gaps can be mitigated. Although ICT has a partial positive effect in reducing disparities in academic outcomes, persistent gaps in infrastructure, institutional support, and pedagogical practices limit its effectiveness. The study further shows that equitable access to technology, combined with adequate training for both students and lecturers, and is crucial for realizing the potential of ICT to foster learning equity. In essence, ICT is a powerful tool with the potential to narrow learning gaps, but its impact is conditional on contextual and structural factors. Without deliberate policies and interventions to ensure access, support, and skill development, ICT integration alone is insufficient to achieve substantial reductions in learning disparities among undergraduate students. The study underscores the importance of a holistic approach that integrates technological resources, pedagogical competence, and institutional support to enhance academic outcomes and promote equity in higher education.

### Recommendations

The paper recommends that higher education institutions in the Central Senatorial District of Kogi State should invest in upgrading ICT infrastructure, including reliable internet connectivity, functional computer laboratories, stable electricity supply, and access to licensed educational software. Since the findings show uneven and moderate ICT integration, improving infrastructure is foundational to achieving equitable learning opportunities. Also, institutional management should implement policies that guarantee equal access to ICT resources for all students, regardless of department, socio-economic background, or level of study. This may include extended laboratory hours, subsidized internet access, device loan schemes, or student technology grants to reduce access-related learning gaps. Again, regular training workshops should be organized to enhance lecturers' capacity to integrate ICT effectively into pedagogy. Emphasis should be placed on instructional design, interactive digital

tools, online assessment strategies, and inclusive technology practices. Since ICT use was found to be moderate and not fully optimized, pedagogical competence must be strengthened.

## References

- Adedoja, G. & Abimbade, O. (2016). Influence of mobile learning training on pre-service Social Studies teachers' technology and mobile phone self-efficacies. *Journal of Education and Practice*, 7(2), 74-79.
- Adeleke, A. A., & Amoo, E. O. (2021). ICT utilisation and academic performance of university students in Nigeria. *African Educational Research Journal*, 9(2), 431-440.
- Baako, I., Osei, E. O., & Abroampa, W. K. (2025). Mapping the landscape of ICT integration in education: A systematic review of literature. *Indonesian Journal of Education and Social Sciences*.
- Basri, W. S., Alandejani, J. A. & Almadani, F. M. (2018). ICT adoption impact on students' academic performance: Evidence from Saudi universities. Retrieved from <https://hindawi.com>
- Freitas, G., & Spangenberg, E. D. (2019). *Mathematics teachers' levels of TPACK and ICT integration barriers*. Pythagoras.
- Idowu, E. (2025). *The impact of ICT on teaching and learning in higher education institutions*. Preprints.org.
- Khan, M. T., Ameen, T. & Rafique, M. (2019). Trends in adoption of social networking sites. *Pakistan Library & Information Science Journal*, 49(1), 11-18.
- Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, 108(6), 1017-1054.
- Murithi, J., & Yoo, J. E. (2021). Teachers' use of ICT in implementing competency-based curricula in Sub-Saharan Africa. *Innovation and Education*, 3(1), 1-12.
- National Universities Commission (NUC). (2022). *Guidelines on ICT development and utilisation in Nigerian universities*. Abuja: NUC.
- Osah, M. I. (2022). Digital application of Social Studies Instruction: A new vision. *Journal of African Social Studies (JASS)*, 3(2), 45-59.
- Siemens, G. (2005). Connectivism: A learning theory for the digital age. *International Journal of Instructional Technology and Distance Learning*, 2(1), 3-10.
- Udodo, A. J. & Ojo, G. O. (2016). New media and the development of education sector: Appraisal of select schools. Retrieved from <https://journals.sagepub.com>
- UNESCO. (2023). *Global education monitoring report: Technology in education – A tool on whose terms?* Paris: UNESCO.
- van, J. (2020). *The digital divide*. Cambridge: Polity Press.
- Yingbao, L., Hanim, H. B. I., & Yunus, M. M. (2025). Teaching pedagogies using ICT in university academic English writing across the globe. *International Journal of Learning, Teaching and Educational Research*.