



Preparing English Language Educators for a Sustainable Artificial Intelligence-Driven and Inclusive Classroom: A Professional Development Framework

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Abstract

The study investigated the preparedness of English language educators for a sustainable artificial intelligence-driven and inclusive classroom in federal colleges of education in South-East, Nigeria. A descriptive survey research design was adopted for the study. Four research questions and one hypothesis guided the study. The sample of the study comprised 108 English language lecturers drawn from three federal colleges of education in the study area. Data were collected using a 33-item instrument titled Preparing English Language Educators for AI-driven and Inclusive Classroom Questionnaire (PELEAICQ), which was validated by five experts and subjected to a reliability test that yielded an index of 0.83 using Cronbach's Alpha Method. Mean and standard deviation were used to answer the research questions while t-test was used to test the hypothesis at 0.05 probability level. The findings of the study revealed that a professional development framework can, to a very high extent, support English language educators in developing skills and competences hence, its high demand for a sustainable AI-driven and inclusive classroom. The study also found that content knowledge, pedagogical, technical, data literacy, digital skills, and collaborative skills and competences in using AI-powered tools were unanimously perceived by male and female English language educators as frameworks to be developed for preparing English language educators. There were no significant gender differences in their perceptions. It was recommended, among others, that federal colleges of education should develop a well-contextualized AI-driven and inclusive professional development framework which will not only enhance English language educators' digital and pedagogical expertise but also ensure that all learners, regardless of background or ability, will benefit from the promise of AI-powered inclusive classroom to foster ongoing educator engagement.

Keywords: English Language Educators, Artificial Intelligence, Professional Development, and Inclusive Classroom

Introduction

In today's intercontinental global village, English has emerged as the language connecting people from diverse background; fostering international understanding in economy, politics, career opportunities, trade, business, diplomacy, education and facilitating access to information, knowledge and development. English has become the common thread that weaves the fabric of global communication together thereby facilitating dialogue, collaboration and communication across cultural and linguistic boundaries of the world. This is evidenced by the fact that the predominant language of the internet and social media and internet is the English language.

In Nigeria, it is the English language that pulls the divergent chords of the language of her

multi-ethnic groups towards a central point to harmonize the different linguistic voices manifested by the peoples of these multifarious groups. Perhaps, this important function accounts for the increasing emphasis on quantitative and qualitative English language teaching and learning. As noted by Nwosu (2021), (teaching and) acquiring English language proficiency is not only a fundamental educational objective but also a critical determinant of future academic and professional success in an increasingly interconnected world. Apparently, it has, therefore, become a necessity for English language educators to prioritize English language teaching in order to equip learners with linguistic skills of listening, speaking, reading and writing, which learners need to succeed in today's globalized world.

English language educators are professionals saddled with the responsibility of exploring education and imparting knowledge to learners by implementing curriculum design for English language education, using different language methodologies, assessing and evaluating English language learning and delving into the dynamics of technology-enhanced English instructional delivery. These professional educators specialize in teaching English as a first, second or foreign language to learners of various ages and proficiency level in inclusive classrooms. They work in a variety of settings including schools, language institutes, universities, colleges of education and online platforms (Richard & Farrel, 2022). In Nigeria, English language educators, especially in tertiary institutions such as federal colleges of education, ensure that the 3-year programme of the Nigeria Certificate of Education (NCE) or the 4-year bachelor degree programme, which is designed to prepare and produce prospective English language teachers are formally and effectively executed. Hence, they explore avenues, opportunities and innovative approaches such as accessing technologies targeted towards revolutionizing English language instruction especially in this technology-driven era.

By implication, English language educators are currently accessing and leveraging instructional technology tools for enhanced instructional delivery. Access to technology is rapidly expanding and recent developments such as deployment of digital teaching and learning platforms, educational apps, and interactive multimedia resources have opened new avenues for improving English language teaching (Lide, 2018). By leveraging digital instructional technology tools to create dynamic and interactive learning environments, English language educators can employ diverse learning styles and provide ample opportunities to practise English language skills in authentic contexts (Bamidele, Attama & Buriamoh, 2024). One of such instructional technologies capable of revolutionizing the way educators approach English language teaching and can promote sustainable professional teaching practices is Artificial Intelligence (AI).

AI is relatively a novel emerging technology, which is rapidly transforming education worldwide. AI refers to intelligent machines that can reason, act and also accomplish or perform tasks as though they are human beings. According to UNESCO (2019), AI are machines capable of imitating certain functionalities of human intelligence including such features as perception, learning, reasoning, problem-solving language

interaction and even producing creative works. On the other hand, Norvig in Omeje (2025) describes AI as the development of computer systems capable of performing tasks that typically require human intelligence such as reasoning, learning, problem-solving and natural language processing. Nworgu (2024) explains that AI is expected to accomplish jobs that should be performed by humans and to accomplish this, schedules, training, understanding problem-solving skills and decision-making processes are assigned to AI systems as programmed responsibilities. Chukwu, Nweke and Chukwu's (2025) observation is that AI has emerged as a transformative force in education, offering solutions to enhance teaching and learning process. AI is, therefore, gradually improving (English language) educators' capacity, allowing them to carry out responsibilities more efficiently and effectively in pedagogy (Edikpa, Nwabueze & Honorius, 2025) thereby preparing them for a sustainable AI-driven and inclusive English language classroom.

AI's include Meta AI with Llama 4, ChatGPT, QuillBot (an AI writing assistant), ChatPDF (an AI for summarizing PDFs), and Gradescope (AI-assisted grading). All these, including AI-powered tools such as language learning platforms, adaptive assessment systems, and natural language processing software, offer opportunities for personalized instruction, automated feedback, and data-driven decision-making (Bullock, 2018). The prospects of AI for educators include providing teachers with real-time data and recommendations to make informed decision (Akdogan & Erturk, 2018); providing new ways of teaching, supporting students with goal setting and managing their own learning; creating engaging lesson plans, writing activities, assessment and automated correction and feedback (Chai, Wang & Xu, 2020). Also, Edikpa, Nwabueze & Honorius (2025) note that AI benefits equally include providing educators with valuable insight and actionable data to improve teaching and learning, providing intelligent tutoring system, automated graded grading, adaptive teaching and learning platforms and content creation among others.

Globally, there is growing evidence that AI can transform teaching and learning. World Bank (2025) reported that when thoughtfully integrated with teacher support, AI-driven interventions can dramatically enhance teaching and learning outcomes. For example, a World Bank (2025) pilot study conducted in Edo State, Nigeria found that after just six weeks of using AI tutors, students' English language scores significantly improved as technology such as generative AI, speech-

recognition tools, and automated grading systems were explored in classrooms. Also, the finding of a descriptive survey study conducted by Onwuagboke et al (2024) indicated that lecturers are aware of AI tools for teaching and research including conversational models and AI-assistant. These tools, when free or affordable, offer English educators new ways to generate quizzes, analyze texts, provide personalized feedback, and support students with different learning needs.

Currently, it appears that a few AI tools are particularly accessible and gaining traction in Nigeria's education sector. Foremost is ChatGPT (OpenAI's GPT-based chatbot), which many educators use for brainstorming lesson ideas, generating writing prompts, and even simulating conversations for language practice. Closely related is Microsoft Copilot (often powered by GPT-4), which was used in the Edo State English tutoring program; students interacted with Copilot through prompts while teachers supervised (World Bank, 2025). These experiments show that generative AI, if freely available (eg. openAI offers free GPT-3.5) or provided by schools (eg. Copilot licenses), can scale individualized tutoring in large classes. Other tools include QuillBot, a paraphrasing/writing assistant, ChatPDF for summarizing readings and voice reader for accent differentiation, Grammarly for auto-correction, and AI-driven plagiarism/grammar checkers. Although not strictly AI, tools like Google Translate and Grammarly are also widely used to assist English language teaching and learning. Also, AI-powered mobile apps for voice-to-text can help students with writing difficulties, and low-cost tablets with offline AI tutors. The foregoing is an indication that AI is providing unprecedented opportunities that can enhance English language education and learning outcomes. Johnson, Adams-Becker, Cummins, Estrada & Freeman (2018) are of the view that institutions worldwide are leveraging AI solutions to address challenges such as student-retention, academic performances and educational equity.

Educational equity or inclusive classroom, which involves ensuring that all students (including those with disabilities or from marginalized backgrounds) succeed in the same classroom, is a core global goal. UNESCO (2024) stresses that inclusive pedagogy requires addressing all barriers (physical, linguistic, and gender-based) and creating supportive learning environments. Fortunately, AI-powered tools can be adopted to address the challenges of inclusive English language classroom. For instance, in trying to solve the problem of visually impaired students when teaching Oral

English in an inclusive classroom, leveraging AI-powered tools that convert digital texts or speech into tactile sensations can be helpful. Such AI tools give such visually impaired students access to instruction and information through touch. This is because the tools provide audio descriptions, real-time transcriptions of spoken language into tactile signals and also provides tactile feedback. This makes learning materials more accessible to visually impaired students

Some of these AI tools that can be used in an inclusive classroom for the visually impaired, for instance, include Talking Tactile Technology and International Phonetic Alphabet (IPA) Transcriber, (which converts written texts into their phonetic equivalence using IPA symbols); Duolingo: (an audio-based lesson for visually impaired learners); Speechling, which is an AI-powered speech analysis for pronunciation; FluentU (interactive speech practice with real-world videos); Babble (provides audio and speech recognition exercises); Forvo (for pronunciation feedback and correction); Verbling which provides a speech practice with AI-powered feedback and Braille displays which convert text to Braille to make accessibility to information easy through touching.

Apart from the example cited above, this study has identified other evidence-based strategies for inclusive English language classrooms such as collaborative learning which involves group work, peer support and peer tutoring. It allows students of varying abilities to help each other. For example, pairing an English learner who struggles with a peer who has higher proficiency can boost confidence and social skills (Onajide, 2024). In Nigeria's communal culture, this approach fits naturally as students often form study circles. So, in addition to using AI-powered tools, formalizing peer tutoring in English language activities and tasks can promote inclusion.

Another is differentiated instruction where educators vary content, process, and product to meet students' diverse needs. In practice, an English language educator might offer reading materials at multiple difficulty levels or give alternative assignments such as oral presentation versus written report to students with different strengths (Nwosu & Ugwoke, 2020). This ensures that every learner can engage with the curriculum at an appropriate level. Differentiated instruction also means linking English lessons to students' local context (e.g. using culturally relevant examples and languages) and providing extra scaffolding (like vocabulary lists) to slower learners. Another way is designing a

professional teaching framework for English language educators.

Universal Design for Learning (UDL) is a proactive framework that provides multiple means of representation, expression, and engagement (Onajide, 2024). In an inclusive English classroom, this might look like presenting material via text, audio, and visuals (to cater to reading, auditory, and visual learners) and allowing students to demonstrate understanding in various ways (writing, speaking, and drawing). But Onajide emphasizes that UDL requires designing lessons with flexibility from the start. Nigerian classrooms can apply UDL by, for example, using story-telling (oral narrative), songs and drama to teach language content, or by letting students use assistive tools (audio recordings, word-prediction apps) to engage.

Assistive technology and multi-sensory methods involves employing devices and software that can significantly aid students with disabilities (Nwosu & Ugwoke, 2020). For instance, screen-readers and text-to-speech apps help visually impaired learners to follow English lessons, while speech recognition can aid those with writing difficulties. Instruction that engages multiple senses (sight, sound, touch) also benefits diverse learners. Nigerian classrooms can use low-cost assistive approaches: for example, having written poems also performed aloud (auditory + visual), or using tactile letter tiles for spelling (kinesthetic). Importantly, Nigeria's limited resources mean teachers often "make do" with what is available. A smartphone's voice assistant or radio programs can double as assistive tools. Multi-sensory and assistive strategies also create a classroom culture of respect and belonging, which Nwosu and Ugwoke (2020) recognize as vital for inclusion.

Reflective practice and learner participation is a pedagogical skill where inclusive teachers continually reflect on their methods and seek student feedback. Onajide (2024) asserts that by observing how all students engage and inviting self-evaluation, teachers adjust instruction to individual needs. Moreover, culturally responsive teaching; acknowledging students' home languages and experiences is critical in Nigeria's multilingual context. Nwosu & Ugwoke (2020) note that fostering respect for diversity and positive behaviour support helps students with and without disabilities feel accepted. In practical terms, Nigerian English language educators can integrate local proverbs, accept code-switching to indigenous languages when introducing new English concepts, and highlight the strengths of each learner. The practical implementation of such integration may be hindered

by gender variations as in how males and females English language educators interact with AI-powered tools reflecting differing teaching preferences and needs.

Gender refers to the social, economic, political and cultural characteristics, societal roles, attributes, expectations and differences associated with being a male or a female. Gender differences can significantly shape the way English language educators interact with AI thereby influencing their adoption, integration and utilization of AI-powered tools. Examining gender differences in AI-powered tool usage among English language educators is crucial due to the varying socio-cultural contexts, opportunities and expectations that shape male and female educators' interaction with technology. For instance, Zahedi et al (2021) observe that females prefer structured (teaching and) learning activities and interactive language exercises in AI-powered tools while males are often drawn to gamification and competition. In addition, variations in digital access, confidence levels and ability to adapt to technology may shape how male and female English language educator interact with AI tools (Kerras, Bautista, Piñeros Perea & De-Miguel Gómez, 2022). Understanding these gender variations is essential for developing an inclusive PDF that meets the needs of English language educators irrespective of their gender thereby promoting equitable classroom practices. Also acknowledging and addressing gender differences can help educators to harness the benefits or potentials of AI to revolutionize English language instruction. This study examined male and female English language educators' perception on developing a professional development framework for a sustainable AI-driven and inclusive classroom.

Despite the efficaciousness of AI tools in revolutionizing the way educators approach teaching: by providing varieties of teaching experiences and promoting sustainable pedagogical practices, Chapelle (2017) reveals that many educators lack the necessary training and support to effectively harness the potential of AI-powered tools. Here lies the need for providing a Professional Development Framework (PDF) for preparing English language educators for inclusive AI-driven classroom. The framework is grounded in three theories: constructivism, transformative learning, and Technological Pedagogical Content Knowledge (TPACK). Together, they justify an active, reflective, and integrative approach to preparing English educators for an AI-driven inclusive practice.

Constructivism posits that learners actively 'construct' new knowledge by relating it to existing

understanding (Bruner, 1960; Piaget, 1954). In the context of teacher Professional Development (PD), it means that educators should not be passive recipients of information about AI or inclusion. Instead, they should engage in hands-on tasks (e.g. experimenting with an AI tool to solve language-teaching problems), collaborative discussions (e.g. peers co-designing an inclusive AI lesson), and projects that build on their prior teaching experience. Social constructivist such as Vygotsky (1978) further emphasizes learning through social interaction, suggesting the PD framework include peer learning communities and mentoring. For example, an English language educator might learn to use ChatGPT by sharing prompts and results with colleagues, thus scaffolding each other's learning. Applying constructivism ensures that teachers 'experience' AI and inclusive strategies in context, integrating them into their conceptual framework of teaching.

Transformative Learning Theory (Mezirow, 1991) focuses on how adults revise their deeply held beliefs through critical reflection. Teachers may enter the PD program with assumptions about AI and inclusion such as *it is cheating; it is beyond my skill* or that *all students must learn the same way*. Transformative learning suggests PD should challenge these assumptions in a supportive way. By analyzing case studies (e.g. a classroom where AI tutorial questions led to deeper student inquiry) or reflecting on video examples, teachers can undergo perspective shifts. PD activities might include journaling about personal experiences teaching diverse learners, or critically discussing ethical issues of AI (privacy, fairness). Through guided reflection, educators can transform their mind set to see AI as a tool for creative pedagogy and inclusion as enriching, rather than burdensome. This aligns with Sustainable Development (SD: ensuring inclusion equitably) and prepares teachers to advocate for change in their own schools.

Technological Pedagogical Content Knowledge (TPACK) emphasizes that effective teaching with technology requires deep, intertwined knowledge of content, pedagogy, and technology (Mishra & Koehler, 2006). For English language educators, content knowledge includes grammar, literature, and language acquisition theory; pedagogical knowledge includes methods for teaching reading, writing, speaking, and differentiating instruction; and technological knowledge includes familiarity with digital tools and AI. The PD framework will use TPACK to ensure that training is balanced, not just teaching *what* AI tools exist, but *how* to apply them to English content

and inclusive pedagogy. For example, a PD module might cover using an AI voice-transcription app (technology) to facilitate dictation exercises (pedagogy) in teaching essay writing (content). TPACK theory also implies that teachers need opportunities to integrate these domains. Hence, workshop activities where teachers jointly design an AI-enhanced inclusive English lesson would embody this integration. In summary, TPACK guides the curriculum of the PD program to target all three knowledge domains so that technology use is pedagogically sound and content-appropriate.

By intertwining these theories, the PD framework encourages active, socially constructed learning of AI tools (Constructivism), critically reflective practice to transform teacher beliefs (Transformative Learning), and a balanced integration of AI into language pedagogy (TPACK). This theoretical grounding ensures that the professional development is not a one-off workshop, but part of a sustainable learning process that encourages teachers to build on what they already know, challenge and expand their understanding, and continuously refine their practice to align with a comprehensive Professional Development Framework (PDF). The proposed PDF for AI-driven inclusive classroom consists of six components which are content knowledge, pedagogical, technical, data literacy, critical, and collaborative and communication skills.

Content knowledge skills entail being knowledgeable in the subject matter, understanding the English language curriculum, developing materials and resources that support language acquisition and integrating AI-powered tools such as grammar or vocabulary building tools, interactive simulations or adaptive assessments into English language instruction. For instance, teachers can use AI-powered tools, such as language learning platforms or educational software, to provide students with additional support and practice in language learning, and engaging in personalized learning experiences.

Pedagogical skills are crucial for teachers to design and implement effective AI-enhanced instruction in an AI-driven English language classroom. Here are some examples of how pedagogical skills can be applied: designing AI-enhanced lessons; designing lessons that incorporate AI-powered tools such as adaptive assessments or interactive simulations to provide students with engaging and personalized learning experiences. Using AI to support differentiated instruction; using AI-powered tools to provide students with differentiated instruction such as customized

learning pathways or adaptive assessments to meet their individual needs and developing AI-enhanced assessment strategies such as automated grading or feedback systems, to provide students with timely and effective feedback.

In an AI-driven English language classroom, technical skills are essential for teachers to effectively integrate AI-powered tools into their teaching practices. Some examples of how technical skills can be applied include using Learning Management Systems (LMS) platforms such as Moodle or Blackboard to create and manage online courses, track students' progress, and provide feedback (Bullock, 2018); utilizing language learning platforms such as Duolingo or Babbel to provide students with interactive and personalized language learning experiences and integrating educational software, adaptive assessment systems and natural processing software to provide students with interactive and additional practice.

Data literacy skills are crucial for English language educators to effectively use data from AI-powered tools to inform their teaching practices by analyzing students' data from AI-powered tools such as language learning platforms, to identify areas where students need additional support or practice; using data from AI-powered tools to inform their instructional decisions, such as identifying areas where students need additional support or practice and developing data-driven assessment strategies (Bullock, 2018) that incorporate data from AI-powered tools, such as automated grading or feedback systems to provide students with timely and effective feedback.

Critical thinking skills are essential for teachers to effectively evaluate the effectiveness of AI-powered tools and their impact on teaching and learning practices. The following are some examples of how critical thinking skills can be applied: evaluating the effectiveness of AI-powered tools; evaluating the effectiveness of AI-powered tools such as language learning platforms or educational software to determine their impact on teaching and learning practices; identifying potential biases in AI-powered tools such as biases in language learning platforms or educational software to ensure that they are fair and equitable and developing critical perspectives on AI in education (Oladele, 2022) including the potential benefits and limitations of AI-powered tools to determine their impact on their teaching and learning practices.

In an AI-driven English language classroom, collaboration and communication skills are crucial for teachers to effectively work with colleagues, students, and other stakeholders to design and

implement AI-enhanced instruction. This includes collaborating with colleagues to develop AI-enhanced instruction including designing lessons and assessments that incorporate AI-powered tools; communicating with students about AI-powered tools including providing instructions on how to use the tools; addressing any questions or concerns they may have and working with stakeholders including administrators and curriculum developers to develop AI-enhanced curriculum. This study, therefore, aims at developing a professional development framework to prepare English language educators for a sustainable AI-driven inclusive classroom. To guide the study, the following research questions and hypotheses were posed:

Research Questions

The following research questions were formulated to guide the study:

1. What professional development framework can be developed to support English language educators for a sustainable AI-driven and inclusive classroom?
2. To what extent can a professional development framework support English language educators in developing the skills and competences for a sustainable AI-driven and inclusive classroom?
3. What are the professional development skills and competences required by English language educators for a sustainable AI-driven and inclusive classroom?
4. What are the perceptions of male and female English language educators on developing a professional development framework for a sustainable AI-driven and inclusive classroom?

Research Hypothesis

The following hypothesis guided the study and was tested at 0.05 alpha level of significance:

H0₁: A significant difference will not exist between the perceptions of male and female English language educators on developing a professional development framework for a sustainable AI-driven and inclusive classroom.

Methods

The study investigated the preparedness of English language educators for a sustainable artificial intelligence-driven and inclusive classroom in South East Education Zone of Nigeria. The zone is made up five states: Abia (0), Anambra (1),

Ebonyi (1), Enugu (1) and Imo State (0). The numbers in bracket represent the number of federal colleges of education in each state. A descriptive survey design was adopted for the study. The design was principally a non-experimental qualitative design administered on a sample to describe attitudes, opinions, experiences and characteristics of the population under study (Ogba & Ede, 2022). The participants of the study were 108 English language educators randomly drawn from the three federal colleges of education in the zone. In each of the three colleges of education, 36 (18 males and 18 females) English language educators were drawn using stratified random sampling technique. This constituted the 108 ($36 \times 3 = 108$) participants used as the sample for the study. Data were collected using a 33-item instrument titled Preparing English Language Educators for AI-driven and Inclusive Classroom Questionnaire (PELEAICQ), which was divided into four clusters with a four-point rating scale pattern. All the clusters were rated Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) except cluster 2, which was rated

Very High Extent (VHE), High Extent (HE), Low Extent (LE) and Very Low Extent (VLE). Items with mean values ranging from 3.50-4.00, 2.50-3.49, 1.50-2.49 and 0.50-1.49 were rated SA/VHE = 4 points; A/HE = 3 points; D/LE = 2 points; and SD/VLE = 1 point respectively. The instrument was validated by three experts in the fields of English Language Education, Measurement and Evaluation, and Educational Technology: one each from Federal College of Education, Eha-Amufu, Enugu State; Federal College of Education (Technical), Umuze, Anambra State and Federal College of Education (Technical), Isu, Ebonyi State. To ascertain the reliability of the instrument, a pilot test was conducted using 20 English language educators from a federal college of education outside the study area. The test-retest method was employed within a two-week interval, and the result yielded a Cronbach Alpha reliability coefficient of 0.83, indicating a high level of consistency. Data was analyzed using mean and standard deviation to answer the research questions while the hypothesis was tested at 0.05 probability level using t-test.

Results

Table 1: Professional Development Framework (PDF) that can be Developed to Support English Language Educators for a Sustainable AI-driven and Inclusive Classroom

S/N	Item Statement	N	\bar{x}	SD	Rem
PDF that can be developed to support English language educators include:					
1	Content knowledge skills for AI-powered inclusive instruction	108	3.08	0.81	Accept
2	Pedagogical skills and competences for AI-powered inclusive digital pedagogy	108	2.95	0.79	Accept
3	Technical skills to use AI-powered tools to provide personalized feedback	108	2.77	0.90	Accept
4	Data literacy skills and competences analyze learners' data for personalized support	108	3.12	0.78	Accept
5	Critical thinking and problem-solving skills using AI-powered tools	108	3.34	0.61	Accept
6	Collaborative and communication skills in using AI-powered tools to support differentiated instruction	108	3.09	0.76	Accept
7	Structured AI-integration training, teaching and learning module	108	2.68	0.92	Accept
Average Mean		108	2.95		Accept

Key: N =Number of respondents; \bar{x} = mean; SD = Standard Deviation; Rem = Remark

Table 1 shows the responses of English language educators on the PDF that can be developed to support a sustainable AI-driven inclusive classroom. The responses suggest a strong support for including content knowledge,

pedagogical, technical, data literacy, critical thinking and problem-solving skills and competences as frameworks to be developed as support for a sustainable AI-driven inclusive classroom.



Table 2: Extent to which a Professional Development Framework can Support Educators in Developing Skills and Competences for a Sustainable AI-driven and Inclusive Classroom

S/N	Professional Development Framework can Support Educators by:	N	\bar{x}	SD	Rem
8	improving AI-integration and encouraging the use of AI-powered tools in the classroom	108	3.12	0.76	High
9	boosting educators' confidence especially with training	108	3.08	0.81	High
10	fostering inclusive practices	108	2.95	0.79	High
11	addressing educators' resistance to AI	108	2.77	0.90	High
12	enhancing long-term digital instructional planning	108	3.12	0.78	High
13	providing hands-on training in the use of AI-powered tools	108	3.34	0.61	High
14	Providing coaching and mentoring support for teachers	108	3.09	0.76	High
15	providing opportunities for teachers to reflect on their practice and identify areas for improvement	108	3.09	0.76	High
16	providing opportunities for teachers to share best practices and collaborate with peers	108	2.68	0.92	High
17	providing support and resources for teachers to continue developing their skills and competences	108	3.12	0.78	High
18	enhancing evaluation and assessment components to measure teacher effectiveness	108	2.95	0.79	High
19	being flexible and adaptable to help educators adapt to their diverse pedagogical and technical needs and contexts	108	3.09	0.76	High
Average Mean		108	3.01		High

Key: N =Number of respondents; \bar{x} = mean; SD = Standard Deviation; Rem = Remark

Data in Table 2 show a generally high positive response. All the items have mean scores above 2.50. This is an indication that a PDF can, to a very high extent, support English language educators in developing skills and competences for a sustainable AI-driven and inclusive classroom.

Table 3: Professional Development Skills and Competences Required by English Language Educators for a Sustainable AI-driven and Inclusive Classroom

S/N	Item Statement	N	\bar{x}	SD	Rem
20	Ability to: integrate AI tools in English language instruction	108	3.12	0.76	Accept
21	adapt AI-powered tools to meet the needs of diverse learners	108	3.08	0.81	Accept
22	use AI-powered tools to promote students' engagement and motivation	108	2.95	0.79	Accept
23	use AI-powered tools to provide personalized feedback to students	108	2.77	0.90	Accept
24	Competence in using: inclusive digital pedagogy	108	3.12	0.78	Accept
25	AI-powered tools to support differentiated instruction	108	3.34	0.61	Accept
26	digital content creation and adaptation to support English language learning objectives	108	3.09	0.76	Accept
27	Critical thinking and problem-solving using AI	108	2.68	0.92	Accept
28	Capacity to analyze learners' data for personalized support	108	2.72	0.85	Accept
Average Mean		108	2.87		Accept

Key: N =Number of respondents; \bar{x} = mean; SD = Standard Deviation; Rem = Remark

Results in Table 3 reveal that items 20 to 28 have mean scores above 2.50, which is set as a criterion for accepting any response. This indicates that English language educators agree that all the above AI and inclusion-related professional skills and competences are highly accepted as PDF to prepare English language educators for AI-driven and inclusive classroom. It, therefore, implies that if efficient, effective, inclusive and equitable English language instruction is targeted, these skills and competences need to be acquired by English language educators. Acquiring these skills will play a crucial role in promoting students' engagement and motivation.

Table 4: Perceptions of Male and Female English Language Educators on developing a Professional Development Framework (PDF) for a Sustainable AI-driven and Inclusive Classroom

S/N	Item Statement	N	Male Mean (N=54)	Female Mean (N=54)	Com-bined Mean	Std. Dev	Rem
Professional Development Framework should:							
29	prioritize AI-literacy and digital competence for effective classroom integration	108	3.02	3.05	3.04	0.78	Accept
30	address potential biases in AI-systems to ensure inclusive language learning experiences	108	2.88	3.10	2.99	0.80	Accept
31	be designed to enhance teacher productivity and enhance	108	3.12	3.00	3.06	0.77	Accept
32	address the needs of diverse learners including those with disabilities	108	2.84	3.06	2.95	0.81	Accept
33	be designed to reduce teacher workload and improve teacher-student interaction	108	3.00	2.91	2.96	0.79	Accept
Average Mean		108	2.97	3.02	2.99		Accept

Results in Table 4 show the perceptions of male and female English language educators on developing a PDF for a sustainable AI-driven and inclusive English language classroom. Data indicate that with mean scores above 2.50, all the male and female educators have the same perception about

developing a professional framework. This indicates a strong positive no-gender-biased acceptance on the relevance and the need for a PDF to prepare English language educators for a sustainable AI-driven and inclusive classroom.

Hypothesis

Table 5: T-test Analysis of Male and Female English Language Educators Perception on Professional Development Framework for AI-Driven and Inclusive Classroom

Gender	N	Mean	SD	Df	t-cal	t-critical	Sig. level	Dec.
Male	58	3.01	0.73	184	1.76	1.47	0.05	NS
Female	58	2.77	0.88					
Total	108	5.78	1.61					

Key: Df = Degree of freedom-cal = calculated value, Sig = significance level, Dec = Decision

Table 5 shows that the t-calculated of 1.76 is greater than the critical value of 1.47 as presented in Table 5. This means that gender was not a statistically significant factor thus, the null hypothesis that a significant difference will not exist between the perceptions of male and female English language educators on developing a PDF for a sustainable AI-driven and inclusive classroom in federal colleges of education in South East, Nigeria was not rejected.

Discussion

Results in Table 1 suggest a very strong support for including content knowledge, pedagogical, technical, data literacy, critical thinking and problem-solving skills and competences as frameworks to be developed as support for a

sustainable AI-driven inclusive classroom. This finding is in tandem with the opinion of Bamidele, Attama & Buriamoh (2024) that by leveraging digital technology tools to create dynamic and interactive learning environments, English language educators can employ diverse learning styles and provide ample opportunities to practise English language skills in authentic contexts thus the need for the development of professional development framework.

Data in Table 2 show a generally high positive response that a PDF can, to a very high extent, support English language educators in developing skills and competences for a sustainable AI-driven and inclusive classroom. The positive responses reflect their willingness to adapt and access new trends in technology such as AI tools for

enhancing classroom inclusion. This is because access to technology is rapidly expanding and recent developments such as deployment of digital teaching and learning platforms, educational apps, and interactive multimedia resources have opened new avenues for improving teaching (Lide, 2018) by English language educators. Also, accessing AI technology can, as found by Edikpa, Nwabueze & Honorius (2025), provide educators with valuable insight and actionable data to improve teaching and learning, provide intelligent tutoring system, automated graded grading, adaptive teaching and learning platforms for English language teaching and learning.

Table 3 indicates that English language educators agree that all AI and inclusion-related professional skills and competences are highly required as PDF to prepare English language educators for AI-driven and inclusive classroom. It, therefore, implies that if English language instructional delivery is targeted towards efficiency, effectiveness, inclusivity and equitability, these skills and competences need to be acquired by English language educators. This is because high-quality English language instruction, in essence, hinges on educators' ability to acquire and apply relevant skills and competences that promote students' engagement and motivation. And according to Johnson, Adams-Becker, Cummins, Estrada & Freeman (2018), acquiring such skills and competences will help in addressing challenges such as student-retention, academic performances and educational equity as educators in colleges of education leverage AI solutions just like their counterparts in institutions worldwide.

The findings of this study, as presented in Table 4, show a strong positive no-gender-biased acceptance on the relevance and the need for a PDF to prepare English language educators for a sustainable AI-driven and inclusive classroom. The finding underscores the fact that perception, to a large extent, influences decision-making. This opinion supports Topkaya and Uztosun's (2012) assertion that perception of one's ability to carry out certain tasks and perform a specific job, such as teaching the English language, is a major factor in craving for professional development such as training and harnessing AI potentials. However, Chapelle (2017) reveals that many educators lack the necessary training and support to effectively harness the potential of AI-powered tools.

Table 5 is a presentation of the test of hypothesis formulated to guide this study. It showed no significant difference between male and female English language educators' perceptions of the

proposed PDF. This implies that gender was not a significant determinant of interest or engagement in AI and inclusive classroom. Both male and female educators expressed a unified desire for equitable access to AI tools, inclusive strategies, and professional development opportunities. This aligns with the findings of Orwenjo & Erastus (2018), which noted that technological adoption in education should prioritize equal opportunity and avoid gender biases in content delivery and framework design. However, the findings of this study does not agree with that of Zahedi et al (2021) who found that females prefer structured (teaching and) learning activities and interactive language exercises in AI-powered tools while males are often drawn to gamification and competition. This study rather points to the need for professional development initiatives to be designed with a universal appeal, removing gender-based assumptions about capacity or interest.

Conclusion

This study demonstrated the need for preparing English language educators in federal colleges of education in South-East, Nigeria for the dual imperative of integrating Artificial Intelligence (AI) tools into English language teaching while ensuring an inclusive and sustainable AI-driven learning environments based on professional development framework (PDF). Findings of the study suggested a very strong support for including content knowledge, pedagogical, technical, data literacy, critical thinking and problem-solving skills and competences as frameworks to be developed as support for a sustainable AI-driven inclusive classroom. The findings further indicated that English language educators agree that all AI and inclusion-related professional skills and competences are highly required as PDF to prepare English language educators for AI-driven and inclusive classroom. It, therefore, implies that if efficient, effective, inclusive and equitable English language instruction is the focus, these skills and competences need to be acquired by English language educators. Also, there was a strong positive no-gender-biased acceptance on the relevance and the need for a PDF to prepare English language educators for a sustainable AI-driven and inclusive classroom. The positive responses and acceptance of these educators reflect willingness to adapt and access new trends in technology such as AI tools for enhancing classroom inclusion. The result further revealed that gender was not a significant determinant of interest or engagement in AI-driven and inclusive classroom. Both male and

female educators expressed a unified desire for equitable access to AI tools, inclusive strategies and professional development opportunities.

Recommendations

The following recommendations were made based on the findings of this study:

1. Federal colleges of education should develop a well-contextualized AI-driven and inclusive PDF, which will not only enhance English language educators' digital and pedagogical expertise but also ensure that all learners, regardless of background or ability, will benefit from the promise of AI-powered inclusive classroom.
2. Teacher training programmes, seminar and workshop such as hands-on workshops on using low-tech and free AI tools (e.g., mobile-friendly chatbots, offline adaptive quizzes) should be organized by school management to ensure accessibility in low-resource settings.
3. Teacher certification bodies such as Teacher Registration Council of Nigeria (TRCN) should offer micro-credentials or digital badges for completing professional development modules, rather than high-stakes certification exams, to acknowledge progress and build motivation in English language educators.
4. Federal colleges of education should establish peer-mentoring networks and online forums where educators can share AI lesson plans, troubleshoot challenges and celebrate successes.
5. English language educators should prioritize AI-literacy and digital competence for effective classroom integration by collaborating with AI experts and inclusive pedagogy specialists to co-create training modules that reflect classroom realities in South-East, Nigeria.

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