TEACHING COMPETENCIES REQUIRED OF BUSINESS EDUCATORS FOR INTEGRATING ARTIFICIAL INTELLIGENCE (AI) IN TEACHING AND LEARNING OF OFFICE TECHNOLOGY AND MANAGEMENT PROGRAMME

Dr. Ugwu, Agha Jerry
Department of Office Technology and Management
Akanu Ibiam Federal Polytechnic Unwana, Ebonyi State
08037257692, 07086361917
aghaugwu1999@gmail.com
Akpomedaye Emehi, PhD
Department of Office and Information Management
Faculty of Administration and Management
Southern Delta University, Delta State

Abstract
This study investigated teaching competencies required of business educators *for integrating artificial intelligence (AI) in teaching and learning of office technology and management programme. Three (3) research questions guided the study. Three null hypotheses were tested at 0.05 level of significance. Descriptive survey research design and the study area was South East geo-political zone of Nigeria. The population of the study comprised two hundred and sixty-eight (268) business educators. The instrument for data collection which was validated by Business Educators was a structured questionnaire with 18 item statements. Reliability of the instrument was determined through pilot test using Cronbach Alpha Reliability Statistical Tool and it yielded 0.85 reliability coefficient. Mean and standard deviation were used to answer the research questions while independent t-test was used to test the hypotheses at 0.05 level of significance. The result of the analysis revealed that technical, pedagogical and ethical competencies were required of business teachers for effective integration of Artificial Intelligence (AI) in teaching and learning of office technology and management programme. Based on the findings, it was recommended, among others, that management of public tertiary institutions in South East should from time-to- time train business educators on emerging technologies such as Artificial Intelligence (AI) to develop technical competences which can be adopted for teaching and learning.*

Keywords: *Teaching Competencies,* Business educators, *Artificial Intelligence (AI), Teaching and Learning, Office Technology and Management*

Introduction

Artificial intelligence has been a subject of interest and has raised curiosity across disciplines of which education is one of the prime spaces of its applications. Artificial intelligence (AI) is described as the designing and building of intelligent agents which depend on recognition by the senses from the environment and acts in a way that affects the environment. It is a branch of computer science that uses algorithms and machine learning techniques to replicate or simulate human intelligence (Turing 2019). Artificial intelligence refers to the use of computer systems that can perform tasks typically requiring human intelligence to enhance learning experiences, streamline administrative processes, and support educators. Artificial intelligence (AI) according to Russel and Norvig, (2020), connotes the development of computer systems that can perform tasks that typically require human intelligence, such as learning problem-solving, and decision-making. UNESCO (2022) defines Artificial Intelligence as “systems capable of processing data and information in a way that resembles intelligent behavior, and generally encompasses aspects of reasoning, learning, perception, prediction, planning or control. AI technologies include machine learning, natural language processing and robotics, which can personalize learning by adapting content and pace to individual student needs. This personalized approach helps address diverse learning styles and paces, ensuring that each student receives the attention and resources they need to succeed. Artificial intelligence is revolutionizing various sectors and education is no exception.

The integration of AI in higher education has brought about significant changes that enhance learning experiences, streamline administrative tasks and support both students and educators in various ways particularly in teaching and learning of business education programme. Dimelu (2018) noted that Business Education houses Office Technology and Management (especially in the University, College of Education and Polytechnics). Office Technology and Management is a subset of Business Education programme. Office Technology and Management (OTM) was formally referred to as secretarial studies in Nigeria's tertiary education system but evolved out of the need to meet the technological and managerial demands of the contemporary workplace. The Office Technology and Management (OTM) option focuses on the grooming of OTM graduates who specialize in the study of modern office electronic equipment. The programme exposes its recipients to the use of modern office technologies in carrying out office information- related tasks. Eneche and Audu (2014) stated that Office Technology and Management (OTM) is a discipline that focuses on the planning, organizing, directing, and controlling of office activities to ensure that various resources (human and material) are put into optimal utilization so as to achieve the aims of the organization. One of the responsibilities of Office Technology and Management (OTM) is to produce competent graduates who are able to function effectively in workplace. In the context of teaching and learning in office technology and management, AI has the potential to transform the way teaching and learning take place especially at tertiary institutions. Teaching involves setting up an activity to enable somebody learn something which can improve the person's knowledge, skills, attitudes and values. Learning on the other hand, involves the organization and the restructuring of experience. It is the process which causes a change in the attitudes, interest, adjustments, skills, beliefs, cognitive structures, insights, mannerisms, gestures, etc. of an individual and it is only a good teacher who takes an eclectic position to bring to fruition each learning process in his/her classroom. The integration of Artificial Intelligence (AI) in Office Technology and Management is transforming the way teaching and learning take place in higher education. Dimelu (2018) opined that AI technologies become increasingly prevalent in educational settings, teachers including Office Technology and Management at higher education need to develop specific competencies to effectively integrate AI into their teaching and learning in tertiary institutions.

Competency reflects the ability to do something in contrast with more traditional ability to demonstrate knowledge. Competency can be described as sum total of all skills and knowledge needed by a teacher to be successful in teaching. According to Golman, Boyatzis, and Mckee (2022), competency is the underlying characteristics of an individual that relate to effective or superior performance in a job. It is a skill that leads to superior performance. Similarly, Chung, Stepich, and Cox (2016) posited that teaching competencies for business educators are those tasks, skills, attitudes and values that are deemed critical to success in life or in earning a living. Again, Olaitan (2023) noted that to be competent implies that an individual has acquired the knowledge, skills, attitudes and judgments which he requires in order to perform successfully at a specified proficiency level in a given work. This implies that competency in an individual holds the key to effectiveness in work. Business educators must note that competency is a critical aspect of employability in an occupation and each competency evolves from explicit statements of teacher roles within the profession. A Business educator in the context of this study is a graduate of college of education/polytechnic/university, who has undergone the necessary recommended training in business education programme and has the responsibilities of delivering instruction following curriculum contents at that level. Business teachers are supposed to possess certain competencies to be able to achieve objectives already outlined in the business education curriculum. Competency is one of the essential elements in teaching. It also determines the effectiveness of teachers during the teaching and learning process and performance of students. According to Zawacki-Richter et al. (2019), the use of AI in office technology and management has the potential to enhance teaching and learning by providing personalized learning experiences, automating administrative tasks, and improving student outcomes. AI can help teachers by offering personalized learning experiences, automating administrative tasks and providing extra support. While AI can enhance the teaching process, the unique qualities that teachers bring to the classroom make them irreplaceable. To harness the potential of AI in education, Business educators including Office Technology and Management lecturers require a range of technical, pedagogical, and ethical competencies. Technical competency involves having a basic understanding of AI technologies and how they can be

applied in educational settings (Farias & Salamanca, 2020). This includes knowledge of machine learning, natural language processing, and computer vision, among other AI technologies.

Business educators require a range of technical competencies to integrate AI in teaching and learning. Farias and Salamanca, (2020) noted that teachers need to have a basic understanding of AI concepts, including machine learning, natural language processing, and computer vision. This foundational knowledge enables teachers to appreciate the capabilities and limitations of AI-powered tools and platforms. Additionally, teachers need to be familiar with AI-powered tools and platforms that can support teaching and learning, such as intelligent tutoring systems and adaptive learning platforms (Zawacki-Richter et al., 2019). They also need to be able to integrate AI-powered tools with existing learning management systems and other educational technologies (Kimmons et al., 2020). Furthermore, teachers need to be able to analyze and interpret data generated by AI systems, including data on student's learning outcomes and engagement (Mandinach & Gummer, 2016). Finally, they need to be able to troubleshoot technical issues related to AI-powered tools and platforms, and provide technical support to students and colleagues.

Pedagogical competency is also essential for effective AI integration in teaching and learning. Business educators need to understand how to design and deliver AI-infused instruction that aligns with learning objectives and outcomes (Kimmons et al., 2020). This involves developing lesson plans and activities that incorporate AI-powered tools and platforms in a way that supports student learning. Business teachers also need to be able to assess the effectiveness of AI-infused instruction and make adjustments as needed. Business educators also need to be able to facilitate student-centered learning experiences that incorporate AI-powered tools and platforms (Kimmons et al., 2020). Moreover, they need to be able to use AI-powered tools and platforms to personalize instruction and meet the diverse needs of students (Baker, 2016). Additionally, Business educators need to be able to use AI-powered tools and platforms to develop critical thinking and problem-solving skills in students (Shute, 2018). Finally, they need to be able to assess student learning in environments that incorporate AI-powered tools and platforms. In addition to technical and pedagogical competencies, Business educators need to develop data literacy skills to effectively integrate AI in teaching and learning. Data literacy involves being able to interpret and use data generated by AI systems to inform instruction and improve student learning (Mandinach & Gummer, 2016). Business teachers need to be able to analyze data on student learning outcomes, engagement, and progress, and use this data to adjust their instruction and improve student outcomes.

Other competencies required of business educators in the use of artificial intelligence in teaching and learning is ethical competencies. Business educators need to be aware of the ethical implications of using AI in education. Ethics of AI delineates the essential ethical values, principles, regulations, institutional laws and practical ethical rules that teachers need to understand and apply for education. This aspect defines teachers' progressively deeper understanding of fundamental ethics of AI, skills to make safe and responsible use of AI, and comprehensive competencies to participate in the adaptation of ethical rules. The lack of security and critical thinking about information shared through AI poses great threats for students, teachers, and educational institutions. Access to digital environments and advanced technologies does not guarantee that current and future students are competent in the use of technology [28, 33]. According to Holmes et al. (2021), AI systems can perpetuate biases and inequities if they are not designed and implemented carefully. Despite being immersed in it since its birth, its effectiveness in safely using different technological tools has been questioned. It has been found that they are more likely to share personal and confidential information in different applications without investigating the possible consequences on their security and privacy. Teachers also need to be able to protect student data and privacy when using AI-powered tools and platforms (Mandinach & Gummer, 2016). Moreover, they need to be transparent about the use of AI-powered tools and platforms, and be accountable for their use in teaching and learning (Knight et al., 2020). Additionally, teachers need to ensure that AI-infused instruction is fair and inclusive, and does not perpetuate existing inequities (Baker, 2016). Finally, they need to stay up-to-date with policies and regulations related to AI in education, and ensure that their use of AI-powered tools and platforms complies with these policies and regulations. Business teachers need to be aware of these potential biases and take steps to mitigate them. This includes being transparent about the use of AI in

education, ensuring that AI systems are fair and unbiased and protecting student data and privacy. Integrating AI in teaching and learning requires business teachers to develop a range of technical, pedagogical, and ethical competencies. By developing these competencies, teachers can harness the potential of AI to enhance teaching and learning, while also ensuring that AI is used responsibly and ethically in educational settings. However, the problem is that many teachers in higher education are not adequately prepared to integrate AI in their teaching practices, which can limit the potential benefits of AI in education. This study seeks to contribute to the development of effective strategies for teacher professional development and support in the integration of AI in teaching and learning.

Statement of the Problem

Artificial intelligence has been a topic of interest and has raised curiosity across disciplines of which education is one of the prime spaces of its applications. The integration of Artificial Intelligence (AI) in teaching and learning has become increasingly important in today's educational landscape. The integration of Artificial Intelligence (AI) in teaching and learning in higher education has the potential to enhance student learning outcomes, improve teaching effectiveness, and increase efficiency. However, teachers need to develop specific technical, pedagogical, data literacy, and ethical competencies to effectively integrate AI in their teaching practices. Despite the growing interest in AI in education, many teachers lack the necessary competencies to harness its potential. Technical issues, pedagogical challenges, data literacy gaps, and ethical concerns can hinder the effective integration of AI in teaching and learning. Moreover, the rapid evolution of AI technologies and the lack of clear guidelines and support for teachers can exacerbate these challenges. As a result, there is a need to investigate the technical, pedagogical, data literacy, and ethical competencies required for teachers to integrate AI in teaching and learning in higher education. This study aims to address this need by exploring the competencies required for teachers to effectively integrate AI in their teaching practices and identifying strategies to support teacher development in this area. The problem is that many teachers in higher education are not adequately prepared to integrate AI in their teaching practices, which may limit the potential benefits of AI in education. It is pertinent to note that the acquisition of technical, pedagogical and ethical competencies in the era of Artificial Intelligence by Business Teachers could in no small measure enhance job performance in all ramifications especially in integration of AI in teaching and learning. It is against this background that this study examined the teaching competencies required of office technology and management lecturers for integrating artificial intelligence (AI) in teaching and learning in tertiary institutions.

Research Questions

1. What are the technical competencies required of business educators for integrating artificial intelligence (AI) in teaching and learning in office technology and management programme?
2. What are the pedagogical competencies required of business educators for integrating artificial intelligence (AI) in teaching and learning in office technology and management programme?
3. What are the ethical competencies required of business educators for integrating artificial intelligence (AI) in teaching and learning in office technology and management programme?

Hypotheses

$H0_1$*:* There is no significant difference in the mean ratings of responses of male and female business educators on the technical competencies required of business educators for integrating artificial intelligence (AI) in teaching and learning in office technology and management programme

$H0_2$*:* The mean ratings of male and female business educators do not differ significantly on the pedagogical competencies required of business educators for integrating artificial intelligence (AI) in teaching and learning in office technology and management programme

$H0_3$*:* No significant difference between mean rating of male and female business educators on the ethical competencies required of business educators for integrating artificial intelligence (AI) in teaching and learning in office technology and management programme

Method

The design for the study was descriptive survey design. The study was carried out in South-East geo-political zone of Nigeria. South East, Nigeria comprised five Igbo speaking states of Abia, Anambra, Ebonyi, Enugu and Imo. The population of the study is Business Educators in the 19 public tertiary institutions in the South East zone which consist of one hundred and twenty-nine (129) male and one hundred and thirty-nine female (139), given a total of two hundred and sixty-eight (268) business educators employed under Business Education Department of public tertiary institutions in South-East, Nigeria. The entire population of 268 was used since the number of the business Educators is manageable size. There was no need for sampling. The instrument for data collection was structured questionnaire titled: "Teaching Competencies Required of Business Teachers for Integrating Artificial Intelligence (AI) in Teaching and Learning questionnaire (TCRBTIATLQ)". The instrument was subjected to validation by three experts; two in the field of Business Education and one in the field of Measurement and Evaluation, Science Education Department. The validated instrument was further subjected to a reliability test. Thirty (30) copies of the instrument were administered to 30 (thirty) lecturers. The items of the instrument yielded an average reliability of 0.85. To facilitate easy method of data collection, the researcher adopted the on-the-spot delivery and recovery method of data collection. Mean and standard deviation were used to answer the research questions. The decision rule was obtained by using the range of 2.50 which served as the mean value that was used in taking decision. Items whose mean value or the overall grand mean is greater than the decision was taken as very effective while items whose mean value was less than the decision mean value was considered as very ineffective. The implication, therefore, was that each item of the instrument with a mean of 2.50 and above was regarded as one of the competencies required for integrating artificial intelligence (AI) in teaching and learning of Office Technology and Management in tertiary institutions in South East, Nigeria. On the other hand, items with mean values less than 2.50 were regarded as not strategies. To test the hypothesis, independent t-test statistical tool was used at 0.05 level of significance.

Results

Research Question One: What are the technical competencies required of business teachers for integrating artificial intelligence (AI) in teaching and learning in office technology and management programme?

Table1: Mean Ratings on the Technical Competencies Required of Business educators for Integrating Artificial Intelligence (Ai) in Teaching and Learning in Office Technology and Management Programme

S/N	**Technical Competencies;** Ability to:	$\bar{x}$	S.D	Decision
1	Select and integrate AI tools in teaching and learning.	3.17	1.01	Agree
2	Understand AI system management, including setup and maintenance.	3.27	0.93	Agree
3	Analyze data generated by AI systems.	3.11	1.03	Agree
4	Troubleshoot technical issues with AI systems.	3.04	1.04	Agree
5	Understand AI concepts, including machine learning and natural language processing.	3.06	1.09	Agree
6	Be proficiency in using digital tools and platforms.	2.59	1.15	Agree
	Grand Mean	**3.04**	**1.04**	**Agree**

Results in Table 1 showed that questionnaire items 1-6 are all accepted or agreed upon as positive responses because they have mean values above the decision mean value of 2.50. This means that the respondents (Business Educators) agreed that they are all the technical competencies required of business educators for integrating artificial intelligence (AI) in teaching and learning in office technology and management programme.

Research Question Two: What are the pedagogical competencies required of office technology and management lecturers for integrating Artificial Intelligence (AI) in teaching and learning in tertiary institutions?

Table2: Mean Ratings on the Pedagogical Competencies Required of Business educators for Integrating Artificial Intelligence (AI) in Teaching and Learning in Office Technology and Management programme

S/N	Pedagogical Competencies; Ability to:	$\bar{x}$	S.D	Decision
7	Design curricula that integrate AI effectively.	2.59	1.15	Agree
8	Design instructional materials that incorporate AI.	2.97	1.09	Agree
9	Manage classrooms where AI is used.	2.55	1.19	Agree
10	Promote student engagement with AI.	3.40	0.73	Agree
11	Use AI to support personalized learning.	3.27	0.71	Agree
12	Design assessments that account for AI use.	3.37	0.76	Agree
	Grand Mean	**3.02**	**0.93**	**Agree**

Results in Table 2 showed that questionnaire items 7-12 are all accepted or agreed upon as positive responses because they have mean values above the decision mean value of 2.50. This means that the respondents (Business Educators) agreed that they are all the pedagogical competencies required of required of business educators for integrating artificial intelligence (AI) in teaching and learning in office technology and management programme.

Research Question Three: What are the ethical competencies required of business teachers for integrating artificial intelligence (AI) in teaching and learning in office technology and management programme.

Table3: Mean Ratings on the Ethical Competencies Required of Business educators for Integrating Artificial Intelligence (AI) in Teaching and Learning in office technology and management programme

S/N	Ethical Competencies; Ability to:	$\bar{x}$	S.D	Decision
13	Understand the potential biases in AI systems.	3.32	0.67	Agree
14	Promote digital citizenship and responsible AI use.	3.51	0.74	Agree
15	Protect student privacy when using AI.	3.42	0.71	Agree
16	Provide transparency into AI-driven decision-making.	3.40	0.74	Agree
17	Ensure accountability for AI-driven outcomes.	3.31	0.79	Agree
18	Model responsible AI use and promote ethical AI practices	3.15	0.89	Agree
	Grand Mean	**3.35**	**0.75**	**Agree**

Results in Table 3 showed that questionnaire items 13-18 are all accepted or agreed upon as positive responses because they have mean values above the decision mean value of 2.50. This means that the respondents (Business Educators) agreed that they are all the ethical competencies required of business educators for integrating artificial intelligence (AI) in teaching and learning in office technology and management programme.

Hypotheses

$H0_1$*:* There is no significant difference in the mean ratings of responses of male and female business educators on the technical competencies required of business educators for integrating artificial intelligence (AI) in teaching and learning in office technology and management programme

The t-test analysis of data collected to test the null hypothesis one is presented in Table 4

Table 4: ***t-test Analysis on the Technical Competencies Required of Business*** **educators** ***for Integrating Artificial Intelligence (AI) in Teaching and Learning in Office Technology and Management Programme Based on Gender***

Gender	N	Mean	SD	Df	Alpha	t-cal	P-value	Decision
Male	129	3.28	.698	258	0.05	-.408	.683	Not Significant
Female	131	3.32	.635					

Data in Table 4 shows that all the items are accepted because their respective P-values are greater than the alpha level of 0.05 at degree of freedom of 230. The null hypothesis is accepted, indicating that there is no significant difference in the mean rating of male and female business educators on the technical competencies required of business educators for integrating artificial intelligence (AI) in teaching and learning in office technology and management programme.

$H0_2$*:* The mean ratings of male and female business educators do not differ significantly on the pedagogical competencies required of business educators for integrating artificial intelligence (AI) in teaching and learning in office technology and management programme

Table 5: ***t-test Analysis on the Pedagogical Competencies Required of Business Teachers for Integrating Artificial Intelligence (AI) in Teaching and Learning in Office Technology and Management Programme Based on Gender***

Gender	N	Mean	SD	Df	Alpha	t-cal	P-value	Decision
Male	129	3.39	.630	258	0.05	.663	.508	Not Significant
Female	131	3.34	.629					

Result in Table 5 shows that all the items are accepted because their respective P-values are greater than the alpha level of 0.05 at degree of freedom of 230. The null hypothesis is accepted, indicating that there is no significant difference in the mean rating of male and female business educators do not differ significantly on the pedagogical competencies required of business educators for integrating artificial intelligence (AI) in teaching and learning in office technology and management programme.

$H0_3$*:* No significant difference between mean rating of male and female business educators on the ethical competencies required of business teachers for integrating artificial intelligence (AI) in teaching and learning in office technology and management programme

Table 6: ***t-test Analysis on the Ethical Competencies Required of Business*** **educators** ***for Integrating Artificial Intelligence (AI) in Teaching and Learning in Office Technology and Management Programme Based on Gender***

Gender	N	Mean	SD	Df	Alpha	t-cal	P-value	Decision
Male	129	3.21	.649	258	0.05	-.964	.336	Not Significant
Female	131	3.29	.698					

Data in Table 6 shows that all the items are accepted because their respective P-values are greater than the alpha level of 0.05 at degree of freedom of 230. The null hypothesis is accepted, indicating that there is no significant difference in the mean rating of male and female business educators do not differ significantly on the pedagogical competencies required of business educators for integrating artificial intelligence (AI) in teaching and learning in office technology and management programme.

Discussion of Findings

From the findings of research question one, it was discovered that the technical competencies required of business educators for integrating artificial intelligence (AI) in teaching and learning in office

technology and management programme includes: Ability to select and integrate AI tools in teaching and learning, understanding of AI system management, including setup and maintenance, ability to analyze data generated by AI systems, ability to troubleshoot technical issues with AI systems, understanding of AI concepts, including machine learning and natural language processing, proficiency in using digital tools and platforms. The finding further shows that there was no significant difference in the mean rating of male and female business educators on the technical competencies required of business educators for integrating artificial intelligence (AI) in teaching and learning in office technology and management programme. This finding is in agreement with Farias and Salamanca, (2020) who noted that teachers need to have a basic understanding of AI concepts, including machine learning, natural language processing, and computer vision. This foundational knowledge enables teachers to appreciate the capabilities and limitations of AI-powered tools and platforms. Additionally, the finding is in consonance with Zawacki-Richter et al., (2019) who reported that teachers need to be familiar with AI-powered tools and platforms that can support teaching and learning, such as intelligent tutoring systems and adaptive learning platforms. The finding is in line with Kimmons et al., (2020) who sated that teachers also need to be able to integrate AI-powered tools with existing learning management systems and other educational technologies. Furthermore, the finding is supported by Mandinach and Gummer (2016) who reported that teachers need to be able to analyze and interpret data generated by AI systems, including data on student learning outcomes and engagement. Finally, they need to be able to troubleshoot technical issues related to AI-powered tools and platforms, and provide technical support to students and colleagues.

Data analyzed on research question two indicated that the pedagogical competencies required of business educators for integrating artificial intelligence (AI) in teaching and learning in office technology and management programme includes: Ability to design curricula that integrate AI effectively, ability to design instructional materials that incorporate AI, ability to manage classrooms where AI is used, ability to promote student engagement with AI, ability to use AI to support personalized learning, and ability to design assessments that account for AI use. The study also shows that there was no significant difference in the mean rating of male and female business educators do not differ significantly on the pedagogical competencies required of business educators for integrating artificial intelligence (AI) in teaching and learning in office technology and management programme. This aligns with Kimmons et al., (2020) who noted that teachers also need to be able to facilitate student-centered learning experiences that incorporate AI-powered tools and platforms. The finding is supported with view of Baker (2016) who stated that teachers need to be able to use AI-powered tools and platforms to personalize instruction and meet the diverse needs of students. Additionally, the finding is also in agreement with the opinion ofShute (2018) who sated that teachers need to be able to use AI-powered tools and platforms to develop critical thinking and problem-solving skills in students. They need to be able to assess student learning in environments that incorporate AI-powered tools and platforms.

Data analyzed on research question three indicated that the ethical competencies required of business teachers for integrating artificial intelligence (AI) in teaching and learning in office technology and management programme includes: Ability to understand the potential biases in AI systems, ability to promote digital citizenship and responsible AI use, ability to protect student privacy when using AI, ability to provide transparency into AI-driven decision-making and ability to ensure accountability for AI-driven outcomes and ability to model responsible AI use and promote ethical AI practices. The study further revealed that there was no significant difference in the mean rating of male and female business educators do not differ significantly on the pedagogical competencies required of business educators for integrating artificial intelligence (AI) in teaching and learning in office technology and management programme. This finding is supported by Holmes et al. (2021) who noted that AI systems can perpetuate biases and inequities if they are not designed and implemented carefully. Despite being immersed in it since its birth, its effectiveness in safely using different technological tools has been questioned. It has been found that they are more likely to share personal and confidential information in different applications without investigating the possible consequences on their security and privacy. The finding is also in consonance with Knight et al., (2020) who revealed that teachers need to be transparent about the use of AI-powered tools and platforms, and be accountable for their use in teaching and learning. This finding agrees with Baker, (2016) who noted

that teachers need to ensure that AI-infused instruction is fair and inclusive, and does not perpetuate existing inequalities. Finally, they need to stay up-to-date with policies and regulations related to AI in education, and ensure that their use of AI-powered tools and platforms complies with these policies and regulations

Conclusion

The study assessed teaching competencies required of business educators for integrating artificial intelligence (AI) in teaching and learning of Office Technology and Management programme. It highlighted the importance of developing technical, pedagogical, data literacy and ethical competencies for teachers to effectively integrate Artificial Intelligence in teaching and learning of Office Technology and Management programme**.** The study concluded that acquiring these competencies, business educators can harness the potential of Artificial Intelligence to enhance student learning outcomes, improve instructional delivery, and promote responsible Artificial Intelligence use in teaching and learning of Office Technology and Management programme.

Recommendations

The following recommendations are made:

iv. The management of public tertiary institutions in South East should from time-to-time train business educators on emerging technologies such as Artificial Intelligence (AI) to develop technical competences which can be adopted for teaching and learning.
v. Management of public institutions should offer training and support to help business educators enhance their AI pedagogical competences and comprehend its potential applications in their teaching and learning.
vi. Management of public institutions should provide business educators with professional development opportunities to understand artificial intelligence ethics, including bias, privacy, and transparency.

References

Baker, R. S. (2016). Stupid Tutoring Systems, Intelligent Humans. International Journal of Artificial Intelligence in Education, 26(2), 360-374.

Boulay, B. (2021). Ethics of AI in Education: Towards a Community-Wide Framework. Journal of Artificial Intelligence in Education, 31(1), 1-14.

Dimelu, E. S. (2018). Teachers' competencies as evaluated by students in Arba Minch University. *Eurasia Journal of Mathematics, Science & Technology Education.* 3(2), 149-156

Eneche, J. & Audu, E. (2014). Competencies possessed by upper basic education level teachers for teaching business studies for effective service delivery in Anambra State. *NAU Journal of Technology & Vocational Education*, 2 (1) 130-141

Farias, M., & Salamanca, P. (2020). Teacher training in the use of artificial intelligence in education: A systematic review. Education and Information Technologies, 25(4), 3851-3874.

Farias, M., & Salamanca, P. (2020). Teacher training in the use of artificial intelligence in education: A systematic review. Education and Information Technologies, 25(4), 3851-3874.

Holmes, W., Porayska-Pomsta, K., Holstein, K., Sutherland, E., Baker, T., Shvartsman, G., ... & du Boulay, B. (2021). Ethics of AI in Education: Towards a Community-Wide Framework. Journal of Artificial Intelligence in Education, 31(1), 1-14.

Holmes, W., Porayska-Pomsta, K., Holstein, K., Sutherland, E., Baker, T., Shvartsman, G., ... & du

Kimmons, R., Graham, C. R., & West, R. E. (2020). The intersection of technology integration and teacher identity: A systematic review. Educational Technology Research and Development, 68(2), 499-522.

Kimmons, R., Graham, C. R., & West, R. E. (2020). The intersection of technology integration and teacher identity: A systematic review. Educational Technology Research and Development, 68(2), 499-522.

Llaudett Natividad Escalona-Márquez, Stefanía Johanna Cedeño-Tapia, Luis Alberto Camputaro and Christian Oscar Orlando Aparicio-Escalante (2024). Teachers in the Age of Artificial Intelligence: Preparation and Response to Challenges

Mandinach, E. B., & Gummer, E. S. (2016). What does it mean for teachers to be data literate: Laying out the skills needed for teachers to translate data into actionable evidence. Learning and Instruction, 42, 78-88.

Turing, A. M. (2019). Maquinaria de Computación e Inteligencia. In: Epstein R, Roberts G, Beber G, editors. Análisis de la prueba de Turing. Dordrecht: Springer;. DOI: 10.1007/978-1-4020-6710-5_3

UNESCO (2022). Recomendación sobre la ética de la inteligencia artificial. UNESCO; p. 43. Documento SHS/BIO/PI/2021/1. Disponible n: https://unesdoc.unesco.org/ark:/48223/pf0000381137_spa

Zawacki-Richter, O., L_RECTtin, F., & Smyrnova, V. (2019). AI and machine learning in education: A systematic review of the literature 2018-2018. Educational Technology & Society, 22(1), 133-147.