

Assessment of Teachers' Training and Professional Development Needs for Effective Integration of Artificial Intelligence into Business Education Curriculum in Tertiary Institutions in Delta State

OEDEDE, Jeremiah Omamuzo (PhD)
Department of Office Technology and Management
Delta State Polytechnic
Ogwashi-Uku
08030796891
ogwashijerry@gmail.com

ATUMU, Gentle Asiwino
Department of Office Technology and Management
Delta State Polytechnic
Ogwashi-Uku
07060658534
tumubility@gmail.com

Abstract

As the integration of Artificial Intelligence (AI) continues to revamp numerous enterprises, including business education. The makes the comprehension of the training and professional development needs of lecturers becoming important. This study evaluates teachers' training and professional needs for effective integration of Artificial Intelligence into the curriculum of business education. The descriptive survey design was adopted for the study. In order to attain the objectives of the study, two research questions and two null hypotheses were raised and formulated to guide the study respectively. The study adopted the descriptive survey research design. The population comprised of thirty (30) business education lecturers in two selected higher institutions where business education is taught in Delta State. The entire population was studied. A structured questionnaire titled; Assessment of Teachers Training and Professional Development Needs for Effective Integration of Artificial Intelligence into Business Education Curriculum in Tertiary Institutions Questionnaire (ATTPDNEIAIBETIQ) was used for data collection. The research instrument was validated by an expert in the Department of Business Education, Delta State University, Abraka. Delta State. The Cronbach Alpha statistic was used to ascertain the reliability of the instrument which yielded a co-efficient of 0.89. The descriptive statistics such as mean and standard deviation were used to analyse the research questions while t-test statistic was used to test the null hypotheses at 0.05 level of significance. The findings of the study revealed that numerous lecturers are not knowledgeable about AI-driven tools and applications, inadequate proficiency in the evaluation of AI-driven solutions by lecturers, paucity of sound and comprehensive implementation of the curriculum, insufficient supply of AI-driven technologies into the pedagogical activities and structuring the curriculum to improve pedagogical activities and evaluation to mention but a few. Based on the findings of the study, it was recommended amongst others that business education lecturers and administrators of higher institutions in Delta State should provide periodic in-service to upgrade lecturers' knowledge and proficiency in AI-driven skills and competencies.

Key Words: Teachers Training, Professional Development, Artificial Intelligence (AI) and Business Education Curriculum

Introduction

The integration of Artificial Intelligence (AI)-driven tools into numerous industries including business education has largely and rapidly transformed conventional techniques of teaching and learning. As AI continues to reshape enterprises through numerous tools across all spheres of life, it is imperative that lecturers, especially those in business education are equipped with the necessary skills and proficiencies to integrate AI comprehensively into their curriculum. This study aims to evaluate the training and professional development needs of teachers to ensure that AI is perfectly integrated into the curriculum of business education to equip students for the increased demands of the labour market.

AI is a combination of digital tools that inspires machines to imitate human intelligence, the mechanism of simulating human intelligence by machines which inspires them to execute human tasks (Olajuyigbe, 2024). Among the courses provided to the students in the higher education is business education. Business education is a field of study that provides knowledge and skills needed for entry into business vocations of all sorts and flourishing in them. Business education is a process of guiding an individual with what takes place in the course of business transactions in office, banks, markets, and anywhere money exchanges hands. Equally, it equips students to successfully execute their businesses and to function effectively as stakeholders and consumers in a business economy (Ezeabii and Madueke, 2019). Therefore, business education is spearheading this innovation, given its direct impact to the economic and digital transition inspired by AI. Generically speaking, Ekpenyong (2011), described business education as a field of study that equips students with competencies and skills for their profession in any sphere of economic enterprises, whether it is private or public. Simply put, business education is education for and about profession. It is imperative to state that lecturers' training specializes on sound and learner centred pedagogical techniques for AI-driven content, this could encompass techniques of AI concepts in sound way or applying project-based learning to arouse students' participation. Lecturers are expected to impart students with knowledge on how to structure and organize lessons and assignments that integrate AI-driven technologies and tools, learning on how to appropriate AI-driven technologies and platforms relevant to their course areas like learning on how to utilize AI drive analytics software or AI programming environments Oladele and Adegunle, 2022).

The professional development needs by lecturers encompass on-going learning and training structured to improve their proficiency, knowledge and effectiveness in the classroom for integrating AI-driven technologies into the curriculum of business education. It is also a fact that seminars and collaborative learning with practical enterprises with AI software and technical examples could offer lecturers with present knowledge and practical world application of AI into the curriculum of business education. Meeting these professional needs is vital for lecturers to be armed in incorporating AI into their curriculum effectively. Regular training sessions, workshops and seminars are imperative for improving lecturers' AI-driven skills. Moreover, collaborating with AI educators and industry experts is essential to stay updated on the latest developments in AI and effective strategies for integrating it into education (Brown and Smith, 2021). These collaborative trends could accelerate the development of interdisciplinary courses that offer students with practical knowledge and application of AI, closing the lacuna between theory and practice in business education (Davis and Lee, 2019).

Statement of the Problem

The fast integration of AI into the operations and delivery of business and educational practices fosters profound and enormous transformation on how knowledge is acquired and skills are cultivated. However, the sound interation of AI into the curriculum of business education remains a problem, especially in states where lecturers could lack the requisite training and professional development. In Delta State, there is an increasing notion that numerous business education lecturers are not sufficiently equipped to integrate AI into their pedagogical activities, potentially stopping the capacity of students to acquire the skills required for the AI-powered economy. Despite the enormous importance of AI, there is paucity of research on the definite training and professional development needs of lecturers of business education in this sphere.

This disparity in knowledge raises critical questions about the preparedness of lecturers to apply AI-driven technologies and methodologies, as well as the support structures required to foster this metamorphosis. Addressing these issues is essential for ensuring that business education remains relevant and that students are well-equipped to meet the demands of the modern workforce.

Purpose of the Study

The main purpose of this study is to assess the teachers training and professional development needs of business education teachers for effective integration of artificial intelligence into business education curriculum. Specifically, the study sought to assess the;

1. specific training needs of business education teachers for the effective integration of AI into the business education curriculum in tertiary institutions in Delta State.
2. professional development required for effective integration of Artificial intelligence into business education curriculum in tertiary institutions in Delta State.

Research Questions

The following research questions were raised for the study:

1. What are the training needs of business education lecturers for the effective integration of AI into the business education curriculum in tertiary institutions in Delta State?
2. What are the professional development programmes required by business education lecturers for effective integration of Artificial intelligence into business education curriculum in tertiary institutions in Delta State?

Research Hypothesis

The following null hypotheses were formulated and tested at 0.05 level of significance

Ho1: There is no significant difference in the mean responses of male and female business education lecturers on the training needs for effective integration of Artificial intelligence into business education curriculum in tertiary institutions in Delta State.

Ho2: There is no significant difference in the mean responses of male and female business education teachers on the professional development required for effective integration of Artificial intelligence into business education curriculum in tertiary institutions in Delta State.

Methodology

The study adopted a descriptive research design. The population for the study comprised 30 Business Education lecturers in the two selected tertiary institutions in Delta State offering Business Education Programme namely: Delta State University, Abraka and University of Delta, Agbor. Due to the small number of the population all were used hence there was no sample. The instrument for data collection was a 4-point rating scale questionnaire which denotes the following point, Strongly Agree (4), Agree (3), Disagree (2) and Strongly Disagree (1). The instrument was face and content validated by an expert in the Department of Business Education, Delta State University, Abraka. The internal reliability of the instrument was measured using Cronbach Alpha statistic which yielded a correlation coefficient of 0.89 indicating high reliability. The research questions were analyzed using descriptive statistics like mean and standard deviation and hypotheses were tested using t-test statistics. The significance level for the t-test was set at 0.05. Any item with a mean rating of 2.50 or above was regarded as agree while mean rating less than 2.50 was regarded as disagree. For the hypotheses, when t-calculated value is greater than critical value, the null hypothesis was rejected, otherwise the hypothesis of no significance was accepted.

Results:

Research Question 1: What are the specific training needs of business education lecturers for the effective integration of AI into the business education curriculum?

Table 1: Mean and standard deviation rating of the specific training needs of business education lecturers for the effective integration of AI into the business education curriculum in tertiary institutions in Delta State.

S/N	Item Statements	X	SD	Remarks
1.	Business education teachers require basic training on the principles and application of AI	3.1	0.99	Agree
2.	There is no need for specialized AI training focused on business education contexts	3.2	0.91	Agree
3.	Business education teachers needs hands-on experience with AI tools and platforms	3.37	0.92	Agree
4.	Training in AI ethics and responsible AI usage is necessary for business education teachers	3.21	0.73	Agree
5..	Business education teachers require continuous professional development to stay updated on AI advancements.	3.18	0.94	Agree
6.	Business education teachers need workshops and seminars to integrate AI into business education curriculum	3.25	3.19	Agree
Grand Mean		3.25	0.69	Agree

NB: A= Agree; D= disagree

In table 1 above, respondents strongly feel that business education lecturers need basic training on the principles and applications of AI, with a mean score of 3.1 and a standard deviation of 0.99. There is a recognition of the need for specialized AI training tailored to business education contexts, reflected by a mean score of 3.2 and a standard deviation of 0.91. The necessity for hands-on experience with AI tools and platforms is emphasized, with a mean score of 3.37 and a standard deviation of 0.92, indicating a strong agreement on this requirement. Respondents agree that training in AI ethics and responsible usage is necessary for business education teachers, with a mean

score of 3.1 and a standard deviation of 0.70. There is a consensus on the need for continuous professional development to keep business education teachers updated on AI advancements, with a mean score of 3.18 and a standard deviation of 0.94. Item 6, had deviation of 3.25 and 3.19 respectively indicating closeness and strongly agreed.

Research Question 2: What types of professional development programmes required by business education lecturers for effective integration of Artificial intelligence into business education curriculum in tertiary institutions in Delta State.

Table 2: Mean and Standard Deviation on the professional development programmes required by business education lecturers for effective integration of Artificial intelligence into business education curriculum in tertiary institutions in Delta State.

S/N	Item Statements	X	SD	Remarks
1.	Professional development programmes should include regular AI workshops and seminars on the principles and application of AI	2.89	1.09	Agree
2.	There is a need for mentorship programmes to guide teachers in AI integration	3.24	1.69	Agree
3.	Institutions should provide access to AI resources and tools for business education teachers.	2.62	1.16	Agree
4.	Collaboration with industry experts should be encouraged to enhance AI teaching practices	2.88	1.13	Agree
5.	Ongoing support and follow-up are essential to ensure the successful integration of AI in the curriculum.	3.50	1.7	Agree
Grand Mean		3.02	1.96	Agree

The data in table 2 shows that items 1, 2, 3, 4 and 5 have means and standard deviation of 2.89 and .10, 3.24 and .1.69, 2.62 and 1.16, 2.88 and 1.3 and 3.50 and 1.7 respectively. The items 1,2, 3, 4 and 5 met the criterion benchmark and so were accepted while items 2 was below the criterion benchmark.

Testing of Hypotheses:

Hypothesis 1: There is no significant difference in the mean responses of male and female business education teachers on the training needs for effective integration of Artificial intelligence into business education curriculum in tertiary institutions in Delta State.

Table 3: t-test Analysis Showing Mean and Standard Deviation Ratings of male and female business education lecturers on the training needs for effective

Grouping	N	Mean	Std. Deviation	t	df	Sig. (2-tailed)	Overall	Decision
Female	17	3.32	0.47	-.444	877	.657		NS
Male	13	3.33	0.46					

integration of Artificial intelligence into business education curriculum in tertiary institutions in Delta State

NB: NS= Not Significant; t= t-test calculated; df= Degree of Freedom; and N= Number of Respondents

Table 3 above shows t-score (-0.444) with associated probability of 0.656 being greater than the level of significance of 0.05. Therefore, the null hypothesis was upheld. Hence, there is no significant difference in the mean ratings of male and female business education lecturers on their training needs for effective integration of Artificial intelligence into business education curriculum in tertiary institutions in Delta State.

Hypothesis 2: There is no significant difference in the mean responses of male and female business education lecturers on the professional development programmes required for effective integration of Artificial intelligence into business education curriculum in tertiary institutions in Delta State.

Table 4: t-test Analysis Showing Mean and Standard Deviation Ratings of male and female

Business Education Lecturers on the Professional Development Programmes Required for Effective Integration of Artificial intelligence into Business Education Curriculum in Tertiary institutions in Delta State.

Grouping	N	Mean	Std. Deviation	t	df	Sig. (2tailed)	Overall Decision
Female	17	3.24	0.46	-0.326	877	.745	NS
Male	13	3.25	0.44				

NB: NS= Not Significant; t= t-test calculated; df= Degree of Freedom; and N= Number of Respondents

Table 4 above shows t-score (-0.326) with associate probability of 0.745 being greater than the level of significance of 0.05. Therefore the null hypothesis was upheld. Hence, there is no significant difference in the mean ratings of male and female youths on the extent to which youth empowerment programmes enhance marketing potentials for socio-economic development of youths in Edo state.

Discussion of Findings:

The findings of this research reveal critical insights into the current state of AI integration among business education teachers. The data indicates that teachers have a low to moderate understanding of fundamental AI concepts, as reflected by a mean rating of 1.93 with a standard deviation of 1.03. This suggests that many teachers are not yet confident in their AI knowledge, with a significant proportion acknowledging gaps in their understanding. The variability in responses, while present, is minimal, implying that this issue is widely recognized across the sample group.

Similarly, the proficiency of teachers in using AI tools and technologies is also concerning, with an identical mean rating of 1.93 and a slightly higher standard deviation of 1.08. This finding suggests that teachers do not feel equipped to utilize AI in their teaching practices effectively. The consistent lack of proficiency indicates a broader issue that likely stems from insufficient training and exposure to AI technologies.

On the other hand, the attendance at AI-related workshops and courses shows a slightly better outcome, with a mean rating of 2.25 and a standard deviation of 1.16. This suggests that some teachers are engaging in professional development activities related to AI, though this practice is not yet widespread. The variation in responses indicates that while some educators are proactive in enhancing their AI knowledge, others may lack access to or awareness of such opportunities.

Confidence in integrating AI into the business education curriculum remains low, with a mean rating of 2.03 and a standard deviation of 1.13. Despite a slight improvement over their understanding and proficiency, teachers generally do not feel confident in applying AI within their curriculum. This highlights the need for more targeted support and resources to help educators bridge the gap between theory and practice.

The results of the study also revealed that many lecturers lack the necessary expertise in Artificial

Intelligence, particularly in critically evaluating Artificial Intelligence solutions, implementing Artificial Intelligence tools effectively, and designing Artificial Intelligence -enhanced learning activities (Ajiboye and Adetayo, 2023). These findings are consistent with global trends, where educators worldwide face similar challenges in integrating Artificial Intelligence into their teaching practices (Johnson, 2020).

The adequacy of current AI knowledge for effective teaching was rated the lowest, with a mean of 1.8 and a standard deviation of 0.98. This underscores a strong consensus that business education teachers feel ill-prepared to teach AI effectively. The low variability in responses further emphasizes the urgency of addressing this knowledge deficit.

The research also sheds light on the specific training needs and professional development opportunities that business education teachers require. The need for basic training in AI principles and applications was strongly recognized, with a mean score of 3.1 and a standard deviation of 0.99. Teachers acknowledge that foundational knowledge is essential before they can confidently integrate AI into their teaching practices.

Additionally, there is a recognition of the need for specialized AI training tailored to business education, with a mean score of 2.3 and a standard deviation of 0.91. This indicates that generic AI training may not suffice, and that context-specific programs are necessary to align with the unique demands of business education.

The importance of hands-on experience with AI tools and platforms was also strongly emphasized, with a mean score of 3.37 and a standard deviation of 0.92. This finding suggests that teachers value practical, experiential learning opportunities that allow them to apply AI concepts in real-world scenarios.

Training in AI ethics and responsible usage was identified as another crucial area, with a mean score of 3.1 and a standard deviation of 1.0. This reflects a growing awareness of the ethical implications of AI and the need to prepare teachers to address these considerations in their classrooms.

Lastly, there is a strong consensus on the need for continuous professional development to keep teachers updated on AI advancements, with a mean score of 3.18 and a standard deviation of 0.94. This indicates that AI is an evolving field, and ongoing learning opportunities are essential to ensure that teachers remain competent and confident in their AI-related knowledge and skills. This is in line with the views of (Amadi, 2020), who stated professional development is a major tool to upscale one's knowledge in his or her chosen fields.

Conclusion

The successful integration of Artificial Intelligence into business education curriculum depends heavily on addressing the professional development needs of educators. By investing in targeted training and fostering collaborations with industry experts, educational institutions can enhance the capacity of their educators to deliver high-quality, AI-enhanced business education. This approach aligns with global educational trends and ensures that students are well-prepared for the demands of the modern, AI-driven business environment.

The research highlights that business education teachers possess a foundational understanding of AI concepts and demonstrate moderate proficiency in using AI tools. However, several areas need attention to enhance their capability and confidence in integrating AI into the curriculum. The infrequent attendance at AI-related workshops and the perceived inadequacy of current AI knowledge suggest significant gaps in continuous professional development. Although teachers show basic familiarity with AI principles, their confidence in applying these concepts and their overall proficiency indicate a need for more robust and targeted support.

Recommendations

Based on the findings and the conclusion drawn the following recommendations are made:

1. To address the identified gap in AI knowledge, it is recommended to provide comprehensive training on fundamental AI principles and applications. This foundational training will ensure that teachers have a solid grasp of AI concepts necessary for effective teaching.
2. Establish ongoing professional development programs to keep teachers updated on the latest advancements in AI. This could include regular workshops, seminars, and online courses.

References

- Ajiboye, T., & Adetayo, A. (2023). Professional development for AI integration in Nigerian education. *Nigerian Journal of Educational Technology*, 15(2), 34-47.
- Amadi, C. (2020). The role of AI in transforming business education. *Journal of Business Education Research*, 8(3), 110-122.
- Brown, J., & Smith, K. (2021). Global perspectives on AI in education. *International Journal of Educational Technology*, 12(4), 189-205.
- Davis, R., & Lee, S. (2019). AI-driven education: Bridging theory and practice. *Journal of Educational Innovation*, 14(1), 66-79.
- Ekpenyong, L. E. (2011): Foundations of technical and vocational education: Evolution and practice for Nigerian students in TVE adult and continuing education policy makers and practitioners: Ambik Press Limited
- Ezeabii, I. C. & Madueke, E. C. (2019). Leadership qualities and business skills needed by business education students in public universities in South-East Nigeria for self-employment and national security. *Vocational Business Education*, 7(1): 208-217.
- Johnson, M. (2020). Educators and AI: A global challenge. *Educational Research and Reviews*, 18(5), 245-258.
- Oladele, A., & Adekunle, O. (2022). AI education partnerships in Nigeria. *African. Journal of Educational Development*, 10(3), 77-90.
- Olajuyigbe, E. O. (2024). Repositioning technical and vocational education training (TVET) towards artificial intelligence (AI) for economic development. Lead Paper personated on 11th National Conference of the Business Education Association in Vocational Education (BEAVE) at Delta State.