REVOLUTIONIZING BUSINESS EDUCATION CURRICULUM: THE EXTENT OF INTEGRATING ARTIFICIAL INTELLIGENCE, DATA ANALYTICS, AND DIGITAL MARKETING INNOVATIONS

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Abstract

This study was on revolutionizing the business education curriculum: the extent of integrating artificial intelligence, data analytics, and digital marketing innovations. Three research questions and hypothesis guided the study. The study adopted the descriptive survey research design. The population of this study consisted of 34 business educators in universities in Anambra State. The instrument for collecting data was a structured questionnaire constructed and distributed by the researcher. The questionnaire contained two parts; part I containing items on demography of the respondent and part II containing items covering the research questions that guided the study. The questions were structured on A 4 point rating scale of Very High Extent (VHE); High Extent (HE), Low Extent (LE) Very low Extent (VLE). Cronbach Alpha reliability coefficient was used to test consistency of the instrument and a general coefficient of 0.81. Data collected were analyzed using arithmetic mean and standard deviation while t-test was used to test the hypotheses at a 0.05 level of significance. The study revealed that artificial intelligence, data analytics are integrated in business education curriculum in tertiary institutions to a low extent while digital marketing on a high extent. There is no significant difference in the mean rating of business educators on the extent artificial intelligence, data analytics and digital marketing are integrated in business education curriculum in tertiary institutions. The study recommended that management of business education should collaborate with industry professionals to understand the specific data analytics skills and knowledge that businesses require from graduates. Tailor the curriculum to align with these needs.

Keywords: *business education curriculum, artificial intelligence, data analytics, digital marketing*

Introduction

The Nigerian educational goals which are derived from the country's philosophy and goals include the acquisition of appropriate skills and the development of mental, physical and social abilities and competencies for individual to live in and contribute to the development of the society" (Federal Republic of Nigeria, 2013). In the light of this, emphasis has been placed on the broad goals of Nigerian education to ensure the curriculum provides for both academic and pre-vocational studies which target the realization of the different talents, opportunities and future roles of the citizens; to provide trained manpower in the applied sciences, technology and commerce at sub-professional grades, and to provide technical knowledge and vocational skills necessary for agricultural, industrial, commercial and economic development (FRN, 2013). The goals of education are closely related to business education programmes as they are both focused on developing individuals who can contribute positively to the economic and social development of the country.

Business education is that program of study which encompasses education for office occupations, business teaching, administration and economic understanding. According to Abdulkadir (2017), one remarkable and important characteristic of business education programme is that its' products can function independently as self-employed and employers of labour. To this end, business education encompasses education programme for business, office occupation, economic understanding, entrepreneurship and it seeks to develop in the learners, basic skills for personal use in the future.

In the light of the foregoing, it could be said that business education is one of the most important programmes offered in the university which can engineer students' interest on the range of specialties including realization of the different talents, opportunities and future roles; provision of trained manpower in the applied sciences, technology and commerce at sub-professional grades; provision of technical knowledge and vocational skills necessary for agricultural, industrial, commercial and economic development, organization, human resources management and marketing, to mention but a few

(Ganyaupfu, 2017). The goals of business education can be driven by the curriculum taught in tertiary institutions as the curriculum defines the knowledge, skills and values that students are expected to acquire during their education.

Marc and Marjorie (2022) inquired, if modern business education is still relevant? More specifically, is the curriculum preparing graduates with the skills needed to be successful contributors in the economy? There is an unstated mismatch between the desired jobs, the necessary abilities, the actual training being offered, and the actual jobs (Chamorro-Premuzic & Frankiewiez, 2019). The increased requirements of the post-pandemic economy will only make this mismatch worse. The realm where demand and attention are growing in the economy, is in innovative technology. The innovative technology such as artificial intelligence (AI), digital marketing and data analytics are increasingly influencing both business and daily life, yet confusion and disagreement still exist about whether components of technologies should be covered in business education program. In the light of the foregoing, if the goals of business education are to produce graduates who have skills and knowledge needed to succeed in the digital economy, there is need to incorporate emerging technologies such as artificial intelligence, data analytics and digital marketing in curriculum of business education.

One issue that must be faced is the mismatch between the rate of change in desired skill sets by employers and the rate of change within business curriculum (Marc & Marjorie 2022). The primary cause of this change and mismatch is the ongoing emergence of the knowledge economy. In business schools, the work of management educators has been, currently is, and barring significant intervention, continues to be ordered by the institutional logic and norms within the domain of higher education. Marc and Marjorie (2022) posited that the concept of Artificial intelligence demands a change in the existing paradigm of business education, both in terms of how and what is delivered in the classroom. AI is a transformative technology and as such, provides numerous opportunities and challenges for several disciplines and departments, not only within a school of business but the university as a whole. When taken in the context of a business education and a business school, AI is about the understanding and interpretation, strategizing, and ultimately carrying out actions necessary to further the organization's interests and intents.

Also, business leaders around the globe agree that big data and advanced technologies are influencing how companies create competitive advantage and how they apply day-to-day business processes (EY, 2011). However, the growing need for data analysts are such that new positions are opening within organizations and employers are having to pursue external analytic specialists to fill job needs. Employment growth in the big data field is increasing at accelerated rates and thus, a significant risk to any organization is the inability to recruit skilled, knowledgeable workers. With demand for data-driven cultures expected to increase, more and more companies within both public and private sectors will focus on recruiting adept personnel for their big data needs (Davenport & Bean, 2017). As a result of this demand, it is imperative that business education examine their curriculums to understand what institutions can do to prepare students for careers in the data analytics industry (Henry & Venkatraman, 2015). Another area is digital marketing in business education curriculum.

Digital marketing is a globalized and current development in business strategy, and a departure from the traditional method of connecting and reaching a diversified audience through conventional media like radio, television, newspaper, and magazines (Seyi & Abiola, 2022). Wymbs (2011) initially put up a framework for restructuring curricula to incorporate digital marketing after seeing the probable inadequacies of the current curricula. More recently, in response to the lack of digital skills, Rohm, Stefl, and Saint (2018) make the case for the advantages of a digital marketing curriculum. The studies of McLeod, Bliemel, and Jones (2017), Wilson, McCabe, and Smith (2018), Wymbs (2016), Kerr and Kelly (2017), and Spiller and Tuten (2015) has put up similar arguments for curricular change in analytics to be made. The urge for more and a wider variety of digital marketing courses is there in all of these publications, but it is conspicuously lacking in a clear knowledge of how much digital content is currently reflected in business education curricula.

A business education curriculum that does not incorporate technology innovations could become outdated and irrelevant. Utilizing such curriculum may not prepare its graduates to meet the demands of the modern business world where technology is the driver of growth. In the same line, graduates who do not have the necessary technology skills may find it difficult to secure jobs or compete in the job market. Without exposure to technology and innovation, graduates of business education may lack the skills and knowledge to develop innovative solutions to business problems. This could hinder their ability to start up their own businesses and contribute to the growth and development of their existing businesses. These graduates may be limited in their career choices as many industries now require employees to have some levels of technology proficiency. It is against this backdrop that the researcher seeks to investigate the extent to which technological innovations are integrated in business education curriculum in universities in Anambra State.

Statement of the Problem

Business education programmes is designed to equip its' graduates with the skills and knowledge needed to succeed in the digital economy. They should be familiar with emerging technologies and know how to apply them to real world business situations. Graduates of business education seem not to be trained in emerging technological innovations due to the curriculum design. This makes them less relevant to industry partners who are looking for graduates with skills and knowledge needed to help them succeed in the digital economy. These graduates find it difficult to innovate, develop new products, services and business models. This has limited their abilities to succeed in a competitive business environment. Many have found it difficult to get employed because employers are increasingly looking for graduates who are familiar with emerging technologies and can apply them to real world business. Many of these graduates are ill-equipped to handle the challenges of modern business. To the best knowledge of the researchers, enough empirical studies have not been done to ascertain the extent emerging technological innovations are integrated in Business education curriculum in universities. Thus, a study on this becomes important.

Research Questions

The following research questions guided the study:

1. To what extent is artificial intelligence integrated in business education curriculum in universities in Anambra State?
2. To what extent is data analytics integrated in business education curriculum in universities in Anambra State?
3. To what extent is digital marketing integrated in business education curriculum in universities in Anambra State?

Hypotheses

The following hypotheses was tested at the 0.05 level of significance.

1. There is no significant difference in the mean response of business educators on the extent artificial intelligence is integrated in business education curriculum in universities in Anambra State with respect to age.
2. There is no significant difference in the mean response of business educators on the extent data analytics is integrated in business education curriculum in universities in Anambra State with respect to age.
3. There is no significant difference in the mean response of business educators on the extent digital marketing is integrated in business education curriculum in universities in Anambra State with respect to age.

Method

The study adopted the descriptive survey research design. The area of the study was Anambra state. The population of this study consisted of 34 business educators in universities in Anambra State. There is no sampling because the size is manageable. The instrument for collecting data was a structured questionnaire constructed and distributed by the researcher. The questionnaire contained two parts; part I containing items on demography of the respondent and part II containing items covering the research question that is guiding the study. The questions were structured on A 4-point rating scale of Very High Extent (VHE); High Extent (HE), Low Extent (LE) Very low Extent (VLE). The instrument was validated by three experts, two from the Department of technology and vocational education and one from Measurement and Evaluation. Cronbach Alpha reliability coefficient was used to test consistency of the instrument and a general coefficient of 0.81. Data collected was analyzed using arithmetic mean and standard deviation while t- test was used to test the hypotheses at 0.05 level of significance. When the p value was found to be equal or less than 0.05 alpha levels, the noted difference was said to be significant, therefore, the null hypothesis was be rejected. However, a p value found to be greater than 0.05, the noted difference was insignificant, therefore, the null hypothesis will be accepted.

Results

Research Question 1: To what extent is artificial intelligence integrated in business education curriculum in tertiary institutions in Anambra state?

Table 1: Mean ratings and standard deviation scores of respondents on the extent artificial intelligence is integrated in business education curriculum in tertiary institutions

S/N	Artificial Intelligence and business education curriculum	Mean	SD	Remarks
	Offer specialized courses that delve deeper into AI concepts, algorithms, and applications in business.	2.29	0.63	Low Extent
	Assign hands-on projects that require students to apply AI techniques to solve real-world business problems	1.62	0.61	Low Extent
	Use case studies from various industries to illustrate how AI has been successfully integrated into business strategies	1.82	0.55	Low Extent
	Partner with businesses that are actively using AI to provide students with internship opportunities, guest lectures, and real-world projects.	1.55	0.66	Low Extent
	Invite experts from AI-related fields to deliver guest lectures and workshops, exposing students to cutting-edge research and trends	2.26	0.60	Low Extent
	Regularly update the curriculum to reflect the latest advancements, trends, and applications.	2.14	0.55	Low Extent
	Cluster Mean and SD	**1.94**	**0.60**	Low Extent

Table 1 shows that six items have mean ratings ranging between 1.55 and 2.29 which means that business educators agreed that artificial intelligence is integrated in business education curriculum in tertiary institutions in Anambra state to low extent. The cluster mean of 1.94 shows that business educators agree that that artificial intelligence is integrated in business education curriculum in tertiary institutions in Anambra state to low extent. The standard deviation scores for all the items are within the same range. This shows that the respondents were homogeneous in their opinions.

Research Question 2: To what extent is data analytics integrated in business education curriculum in tertiary institutions in Anambra state?

Table 2: Mean ratings and standard deviation scores of respondents on the extent data analytics is integrated in business education curriculum in tertiary institutions

SN	Data Analytics and business education curriculum	Mean	SD	Remarks
7	Teach fundamental statistical concepts like mean, median, mode, variance, and standard deviation.	2.90	0.81	High Extent
8	Cover methods of data collection, data cleaning, and data preprocessing	2.48	0.71	Low Extent
9	Introduce students to various data visualization techniques, such as graphs, charts, and dashboards	2.68	0.65	High Extent
10	Teach students how to summarize and describe data using techniques like frequency distributions, histograms, and summary statistics.	2.55	0.66	High Extent
11	Cover inferential statistics, hypothesis testing, confidence intervals, and regression analysis	2.26	0.60	Low Extent
12	Familiarize students with popular data analysis tools such as Excel, Python (using libraries like Pandas and NumPy	1.14	0.55	Very Low Extent
13	Collaborate with industries to provide students with access to real datasets and opportunities to work on real business problems	1.12	0.87	Very Low Extent
	Cluster Mean and SD	2.16	0.69	Low Extent

Table 2 shows that three items have mean ratings ranging between 2.55 and 2.90 which means that business educators agreed that those items on data analytics is integrated in business education curriculum in tertiary institutions in Anambra state to a high extent. While three items were ranged from 2.16 to 2.48 indicating low extent. One item ranged 1.12 which is very low extent The cluster mean of 2.16 shows that business educators agree that that data analytics is integrated in business education curriculum in tertiary institutions in Anambra state to low extent. The standard deviation scores for all the items are within the same range. This shows that the respondents were homogeneous in their opinions.

Research Question 3: To what extent is digital marketing integrated in business education curriculum in tertiary institutions in Anambra state?

Table 3: Mean ratings and standard deviation scores of respondents on the extent digital marketing is integrated in business education curriculum in tertiary institutions

	Digital marketing and business education curriculum	Mean	SD	Remarks
14	Cover various digital marketing channels like including social media, content marketing, email marketing and influencer marketing	3.01	0.71	High Extent
15	Teach how consumer behaviour has evolved with the rise of digital platforms	2.97	0.69	High Extent
16	Provide insights into creating compelling and relevant content for digital platforms	2.80	0.68	High Extent
17	Dive into different social media platforms for marketing	2.55	0.66	High Extent
18	Teach students how to measure the effectiveness of digital marketing campaigns using analytics tools	2.44	0.59	Low Extent
19	Assign projects that require students to create and execute digital marketing campaigns for real or simulated businesses.	2.14	0.72	Low Extent
20	Encourage students to stay updated on digital marketing trends, industry news and tools.	2.34	0.88	Low Extent
	Cluster Mean and SD	2.92	0.70	High Extent

Table 3 shows that four items have mean ratings ranging between 2.55 and 3.01 which means that business educators agreed that those items on digital marketing is integrated in business education curriculum in tertiary institutions in Anambra state to a high extent. While three items were ranged from 2.14 to 2.44 indicating low extent. The cluster mean of 2.92 shows that business educators agree that that digital marketing is integrated in business education curriculum in tertiary institutions in Anambra state to high extent. The standard deviation scores for all the items are within the same range. This shows that the respondents were homogeneous in their opinions.

Hypothesis Testing

There is no significant difference in the mean response of business educators on the extent artificial intelligence is integrated in business education curriculum in tertiary institutions in Anambra State with respect to age

Table 3: Summary of t-test analysis of mean ratings of business educators on the extent artificial intelligence is integrated in business education curriculum in tertiary institutions in Anambra State with respect to age

Age	N	Mean	SD	df	t-value	p-value	Decision
25 – 45 year	25	3.40	.37	31	1.868	0.71	Accept Ho
46 years and Above	8	3.07	.38				

The data from the table indicated that there is no significant difference between the mean response of business educators on the extent artificial intelligence is integrated in business education curriculum in tertiary institutions in Anambra State with respect to age (t= -1.318, df= 31, p= 0.71> 0.05). The hypothesis

was accepted indicating that both age bracket do not differ significantly in their mean responses on the extent artificial intelligence is integrated in business education curriculum in tertiary institutions in Anambra State with respect to age.

Hypothesis 2
There is no significant difference in the mean response of business educators on the extent data analytics is integrated in business education curriculum in tertiary institutions in Anambra State with respect to age.

Table 5: Summary of t-test analysis of mean ratings of business educators on the extent data analytics is integrated in business education curriculum in tertiary institutions in Anambra State with respect to age

Age	N	Mean	SD	df	t-value	p-value	Decision
25 – 45 year	25	3.32	.34	31	1.203	0.238	Accept Ho
45 years and Above	8	3.16	.25				

The data from the table indicated that there is no significant difference between the mean rating of business educators on the extent data analytics is integrated in business education curriculum in tertiary institutions in Anambra State with respect to age (t= -1.318, df= 31, p= 0.23> 0.05). the hypothesis was accepted indicating that both age bracket do not differ significantly in their mean responses on the extent data analytics is integrated in business education curriculum in tertiary institutions in Anambra State with respect to age.

Hypothesis 3
There is no significant difference in the mean response of business educators on the extent digital marketing is integrated in business education curriculum in tertiary institutions in Anambra State with respect to age.

Table 6: Summary of t-test analysis of mean ratings of business educators on the extent digital marketing is integrated in business education curriculum in tertiary institutions in Anambra State with respect to age.

Age	N	Mean	SD	Df	t-value	p-value	Decision
25 – 45 year	25	3.39	.38	31	1.318	0.197	Accept Ho
45 years and Above	8	3.09	.42				

The data from the table indicated that there is no significant difference between the mean rating of business educators on the extent digital marketing is integrated in business education curriculum in tertiary institutions in Anambra State with respect to age (t= -1.318, df= 31, p= 0.19> 0.05). The hypothesis was accepted indicating that both age brackets do not differ significantly in their mean responses on There is no significant difference in the mean response of business educators on the extent digital marketing is integrated in business education curriculum in tertiary institutions in Anambra State with respect to age

Discussion

The findings of the study revealed that artificial intelligence is integrated in business education curriculum in tertiary institutions to a low extent. The hypothesis testing revealed that there is no significant difference in the mean rating of business educators on the extent artificial intelligence is integrated in business education curriculum in tertiary institutions in Anambra state with respect to age. The finding of the study agrees with Marc and Marjoe (2022) stated that there is a mismatch between the rate of change in desired skill sets by employers and the rate of change within business curriculum, that Artificial Intelligence demands a change in the existing paradigm of business education, both in terms of how and what is delivered in the classroom. This shows that AI is integrated to a low extent in business education curriculum.

The findings of the study also revealed that data analytics is integrated in business education curriculum in tertiary institutions to a low extent. The hypothesis testing revealed that there is no significant difference in the mean rating of business educators on the extent data analytics is integrated in business

education curriculum in tertiary institutions with respect to age. The finding of the study agrees with Penny and Jeremy (2018) that data analytics skills are highly sought after in today's labour market and create the immediate need for big data and analytics programs in educational institution which is barely integrated in business curriculum, hence there is need to redesign the curriculum also Henry and Venkatraman (2015) asserted that as a result of this demand, it is imperative that business education examine their curriculums to understand what institutions can do to prepare students for careers in the data analytics industry.

The findings of the study revealed that digital marketing is integrated in business education curriculum in tertiary institutions to a high extent. The hypothesis testing revealed that there is no significant difference in the mean rating of business educators on the extent digital marketing is integrated in business education curriculum in tertiary institutions. This goes to show that business education curriculum is exploring the power of digital marketing which have been proven to be of great efficacy. This finding is in contrary to the findings of Ryan, Scott and Carlin (2019) stated that knowledge of digital content is not adequately reflected in business education curricula. Also, Ndubuisi, Ezeani, and Ile (2022) stated that there is need to integrate of digital marketing and contents in business education programme to ensure that the curriculum and delivery system provide satisfactory output that can compete globally in the labour market.

Conclusion

Based on the findings of the study, it was concluded that emerging technological innovations such as artificial intelligence, data analytics, are integrated in business education curriculum in tertiary institutions to a low extent while digital marketing is to a high extent. It was also concluded that there is no significant difference in the mean rating of business educators on the extent emerging technological innovations are integrated in business education curriculum in tertiary institutions.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. Curriculum planners should conduct a thorough review of the existing business education curriculum to identify areas where AI concepts and applications can be integrated. Develop new courses or modules dedicated to AI in business contexts
2. Management of business education should collaborate with industry professionals to understand the specific data analytics skills and knowledge that businesses require from graduates. Tailor the curriculum to align with these needs.
3. Business educators should raise awareness among students about the significance of digital marketing skills in the current business landscape and job market.

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