UNIZIK ORIENT JOURNAL OF EDUCATION

Vol. 12 No. 1 September, 202 ISSN: 0794-9525

DATA ANALYTICS AND BUSINESS INTELLIGENCE IN BUSINESS EDUCATION: EMPOWERING THE FUTURE WORKFORCE IN ANAMBRA STATE

IKEANYIONWU, CHIOMA L.Ph.D.
08036281571
lovettena@yahoo.com
Accounting Education Dept.

and

ONUKWULI, ARINZE G. Ph.D.
08036727438
Commerce & Co-operative Education Department
School of Business Education,
F.C.E. (T), Umunze

Vol. 12 No. 1 September, 202 ISSN: 0794-9525

Abstract

The study determined business education students' perception on the relevance of data analytics and business intelligence for empowering the future workforce in Anambra state, Nigeria. Three research questions guided the study. Survey research design was adopted. The population comprised all the 612 Business Education students in two colleges of Education in Anambra state in the 2023/2024 academic session. The sample size of 242 was determined using Taro Yamane formula and proportionate stratified random sampling technique was used to draw the respondents from each school. A four-point rating scale questionnaire containing 22-items in three sections according to the research questions was used to collect data from the respondents. The instrument was face validated by three experts in Faculty of Education, Nnamdi Azikiwe University, Awka. Overall internal consistency co-efficient of 0.80 was obtained using Cronbach Alpha statistical method. The researcher administered the instrument to the respondents with the help of two research assistants. Mean and standard deviation were used to answer the research questions and determine how far the individual responses are from the mean. The findings indicated among others that data analytics and business intelligence are relevant for empowering the future workforce in Anambra state. The study concluded that Business Education students will be empowered as effective workforce in the digital era with the integration of data analytics and business intelligence into the curriculum although it requires multifaceted approaches for effectiveness. Based on the findings, it was recommended among others that business educators should prioritize experiential learning approaches such as case studies, simulations, and real-world projects to provide practical exposure to students on data analytics tools and techniques to empower them as future workforce.

Keywords: Business Education, Business intelligence, Data analytics, Industry 4.0, Empowerment, Workforce.

Introduction

In the rapidly evolving landscape of business, data analytics and business intelligence (BI) have emerged as critical tools for decision-making and competitive advantage. Warshaw and Wang (2020) submitted that with the advent of Industry 4.0, characterized by the integration of digital technologies into business processes, there is a pressing need for the future workforce to possess proficiency in these areas. Ikeanyionwu and Nzegwu (2024) elucidated that the business education curriculum must align with the current needs of the industry. Consequently, the integration of data analytics and BI into business education has become imperative to equip students with the skills and knowledge and skills for success in the digital age.

Traditionally, Business Education has focused on imparting fundamental principles of management, finance, marketing, and business operations. However, the exponential growth of data and the proliferation of technology have revolutionized the business landscape, creating a demand for professionals who can harness the power of data analytics to drive strategic decision-making. This paradigm shift has underscored the importance of incorporating data analytics and BI into Business Education curricula.

Data analytics uses algorithms to analyze data sets. One can first use data analytics to sort, clean and analyze data sets. Then use Business Intelligence (BI) to make use of the analyzed data based on facts and previous experiences. BI is an umbrella term used to describe the use of data analytics to support business decision-making (Kimmy, 2021). It entails collecting data, analyzing the information gathered and transforming it into digestible components for end-users, as well as applying the information gleaned from reports and visualization to optimize performance. Olaoye and Potter (2024) posited that BI give insights into trends which allows users to question, search and build data easily to guide next lines of actions. BI help organizations visualize what is happening within the organization now, what has happened in the past to get them to where they are currently. BI can be used to optimize classroom scheduling to improve students' success. Yang and Bao (2021) noted that BI even help to analyze which students are more likely to succeed and target which ones might need more academic support. Incorporating data analytics and BI in business processes will aid better-informed decision- making for better results.

Problem of the Study

Despite the recognition of the significance of data analytics and BI for equipping the future workforce, it seems that a wide gap still exists between the skills acquired through traditional business education and those required by industry. Many educational institutions appear to struggle to keep pace with the rapid advancements in technology and the evolving needs of the business world. As a result, graduates probably enter the workforce lacking proficiency in data analytics and BI, thereby hindering their ability to contribute effectively to organizational success. To address this gap, this study determined the relevance of integrating data analytics and BI into Business Education curriculum based on the perceptions of undergraduate Business Education students from the two colleges of education in Anambra State. Determining Business Education students' perceived relevance, challenges and strategies for effective integration of data analytics and BI into the curriculum will provide

insights into effective pedagogical strategies and curriculum enhancements to inform educational practices and empower the future workforce with the requisite skills for success in the digital economy.

Purpose of the Study

The main purpose of the study is to determine the relevance of data analytics and business intelligence (BI) for empowering the future workforce in Anambra state. Specifically, the study determined:

1. The relevance of data analytics and BI in business education programmes for empowering future workforce in Anambra state
2. Challenges in acquiring proficiency in data analytics and BI for empowering future workforce in Anambra state
3. Strategies for effective integration of data analytics and BI into business education for empowering future workforce in Anambra state

Research Questions

The following research questions guided the study:

1. In what ways are data analytics and BI relevant in business education programmes for empowering future workforce in Anambra state?
2. What are the challenges in acquiring proficiency in data analytics and BI for empowering future workforce in Anambra state?
3. What are the strategies for effective integration of data analytics and BI into business education for empowering future workforce in Anambra state?

Methods

A descriptive survey design was adopted for the study. A survey research design is one in which a group of items are studied by collecting and analyzing data only from a few people or items considered to be representative of the entire group Nworgu, (2015). This design was considered appropriate because the study sought the opinions of Business Education students on the problem of the study. The study was carried out in the two colleges of education in Anambra state namely; Nwafor Orizu College of Education, Nsugbe (NOCEN) and Federal College of Education (Tech), Umunze (FCETU). The population is 612 students (420 NCE students in all the levels in FCETU and 192 NCE students in all the levels in NOCEN) in 2023/2024 academic session. The sample size of 242 was obtained using TaroYamane formula. Proportionate stratified sampling technique was used to draw 166 and 76 respondents respectively from the schools. The instrument for data collection was a questionnaire constructed by the researchers. It is titled “Relevance of Data Analytics and Business Intelligence for Empowering the Future Workforce Questionnaire (RDABIEFWQ)” and contains 22 items in three sections based on the research questions with 8, 7 and 7 items respectively on a four-point rating scale of strongly agree (SA), agree (A), disagree (D) and strongly disagree (SD). The instrument was validated by three experts from the Faculty of Education, Nnamdi Azikiwe University, Awka. The instrument was pilot tested to ensure its

reliability and the data collected was analyzed using internal consistency method using Cronbach Alpha and reliability coefficient values of 0.79, 0.81 and 0.80 for the three parts respectively and overall reliability coefficient of 0.80. The questionnaire was administered by the researchers using direct administration method. 231 copies of the instrument (representing 95 percent) were correctly filled, retrieved and used for analysis.

The data obtained were analyzed using mean and standard deviation. Decision for the research questions was based on the cluster mean scores in relation to a cut off mean of 2.50. Any item or cluster with a mean score of 2.50 and above is "agree" while anyone below 2.50 is "disagree".

Results

Table 1

Mean Ratings of Respondents on Relevance of Data Analytics and BI in Business Education programmes for Empowering Future Workforce in Anambra State

S/N	ITEMS	X	SD	REMARK
1	Provides insight to support informed strategic decisions	3.31	0.78	Agree
2	Helps to reduce costs	3.40	0.68	Agree
3	Can be leveraged to gain competitive edge	3.29	0.77	Agree
4	Uncovers hidden patterns and trends	3.31	0.74	Agree
5	Helps tailor marketing efforts	3.34	0.74	Agree
6	Gives the ability to detect fraud	3.35	0.71	Agree
7	Gives ability to predict market fluctuations	3.33	0.74	Agree
8	Helps to drive innovation	3.38	0.69	Agree
	Cluster mean	3.38	0.69	

Authors' computation, 2024

Table 1 shows that the mean score for all the 8 items is above the cut-off mean of 2.50. The cluster mean score of 3.38 shows that the respondents agree that data analytics and BI are relevant in business education programmes for empowering future workforce in Anambra state. The standard deviation for all the items is within the same range showing that the respondents are not wide apart in their ratings.

Table 2

Mean Ratings of Respondents on challenges in acquiring proficiency in data analytics and BI for empowering future workforce in Anambra state

S/N	ITEMS	X	SD	REMARK
1	Involves complex statistical and analytical techniques that can be challenging for students to grasp	3.11	0.92	Agree
2	Limited access to specialized data analytics software and BI tools	3.27	0.83	Agree
3	Inadequate support and guidance from instructors or teaching assistants	3.25	0.88	Agree
4	Lack of practical application opportunities	3.31	0.80	Agree
5	Heavy course loads and competing academic commitments	2.56	0.92	Agree
6	Limited availability of learning resources	2.61	0.87	Agree
7	Limited technical support in institutions	3.29	0.81	Agree
	Cluster mean	3.30	0.80	

Authors' computation, 2024

Table 2 shows that the mean score for all the 7 items have mean ratings greater or equal the cut-off mean of 2.50. The cluster mean score of 3.30 shows that the respondents agree that they are the challenges in acquiring proficiency in data analytics and BI in business education programmes for empowering future workforce in Anambra state. The standard deviation for all the items is within the same range showing that the respondents are not wide apart in their ratings.

Table 3

Mean ratings of respondents on strategies for effective integration of data analytics and BI into Business Education for empowering future workforce in Anambra state

S/N	ITEMS	X	SD	REMARK
1	Interactive, hands-on exercises effectively enhance understanding of data analytics and BI concepts	3.30	0.80	Agree
2	Use of experiential learning approaches, such as simulations and projects	3.30	0.80	Agree
3	Use of peer-to-peer learning or group work to master data analytics and BI concepts	3.38	0.73	Agree
4	Including courses/modules specifically focused on data analytics and BI into business education curriculum	3.39	0.73	Agree

5	Regular updates to the curriculum to reflect advancements in data analytics and BI technologies and practices are essential	3.36	0.72	Agree
6	Access to adequate resources, including software, datasets, and textbooks	3.35	0.76	Agree
7	Provision of mentorship or guidance from faculty members or industry mentors	3.29	0.77	Agree

Authors' computation, 2024

In Table 3, all the 7 items have mean ratings greater than or equal to 2.50, showing that they are the strategies for effective integration of data analytics and BI in business education programmes for empowering future workforce in Anambra state. The standard deviation for all the items is within the same range showing that the respondents are not wide apart in their ratings.

Discussion

The results of the study show that data analytics and BI are relevant in business education programmes for empowering future workforce in Anambra state. This finding supports Niu, Ying, Yang and Bao (2021) that by leveraging BI tools, decision-makers can access accurate and timely information that leads to making better decisions. The finding also agrees with the submission of Olaoye and Potter (2024) that data analytics help decision makers identify trends and outliers which facilitates a deeper understanding of business performance and potential areas for improvement.

Research question two also revealed that the challenges in acquiring proficiency in data analytics and BI in business education programmes for empowering future workforce in Anambra state are: Limited access to specialized data analytics software and BI tools; Lack of practical application opportunities; Limited technical support in institutions; Limited technical support in institutions; Limited access to specialized data analytics software and BI tools, among others. This supports Olaoye and Potter (2024) that key challenges in implementing BI and data analytics are: data quality integration, user adoption training, IT infrastructure and integration, total cost of ownership, among others.

Finding in research question three also revealed that the strategies for effective integration of data analytics and BI in business education programmes for empowering future workforce in Anambra state are: using interactive, hands-on exercises effectively to enhance understanding of data analytics and BI concepts; Use of experiential learning approaches, such as simulations and projects; Use of peer-to-peer learning or group work to master data analytics and BI concepts, among others. This aligns with Warshaw and Wang (2020) who submitted that peer to peer learning helps students learn from their classmates' different perspective, critique and challenge others' thoughts to solidify their learning.

Conclusion

Findings of the revealed that data analytics and business intelligence (BI) are relevant in business education for empowering the future workforce in Anambra State but students

several challenges in acquiring proficiency in the two areas which are surmountable with suitable strategies. Based on the findings, it was concluded that Business Education students will be empowered as effective workforce in the digital era with the integration of data analytics and BI into the curriculum although it requires multifaceted approaches for effectiveness.

Recommendations

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

1. Since data analytics and BI are relevant, curriculum planners should incorporate their contents into various courses across the Business Education curriculum, including finance, marketing, operations, and strategy.
2. Business educators should prioritize experiential learning approaches such as case studies, simulations, and real-world projects to provide practical exposure to data analytics tools and techniques to curb the challenges in acquiring proficiency in data analytics and BI in Business Education programmes for empowering future workforce.
3. Institutions should ensure students have access to specialized software, datasets, and online resources to practice and experiment with data analytics and BI tools outside of the classroom to ensure effective integration of data analytics and BI in Business Education programmes for empowering future workforce.
4. Institutions should foster collaboration between students from different disciplines to tackle complex business problems using data analytics, promoting a multidisciplinary approach to decision-making.
5. Institutions should organize guest lectures, industry panels, and networking events to expose students to real-world applications of data analytics and BI, and facilitate mentorship opportunities with industry professionals.

References

Ikeanyionwu, C. L. & Nzegwu, R. C. (2024, May 8-May 11). *Role of business education in promoting innovation and entrepreneurship in Anambra state* [Paper presentation]. 21st Igbo Studies Association Annual International Conference, Enugu, Nigeria.

Kimmy, G. (2021). What is business intelligence? International Journal of Interdisciplinary Research Method, 3(2), 33-41

Niu, Y., Ying, L., Yang, J. & Bao, M. (2021). Organizational business intelligence and decision making using big data analysis. *Information Processing and Management,* 58(6), 20-34

Nworgu, B. G., (2015). *Educational Research: Basic Issues and Methods. Enlarged ed.* Nsukka: Uni. Trust Pub.

Olaoye, F. & Potter, K. (2024). Business intelligence and analytics software: Empowering data-driven decision making. Retrieved from https://www.researchgate.net/publication/379023330

Warshaw, L. & Wang, T. (2020). Peer learning in data analytics: Engaging students and developing professional skills. Retrieved from https://www.researchgate.net/publication/345890159