ASSESSMENT OF ARTIFICIAL INTELLIGENCE ADOPTION IN TEACHING BUSINESS EDUCATION COURSES IN FEDERAL COLLEGE OF EDUCATION (TECHNICAL), ASABA FOR SUSTAINABLE GLOBAL ECONOMY

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Abstract
The study assessed Artificial Intelligence adoption in teaching Business Education courses in FCE(T), Asaba for sustainable global economy. Two research questions and two hypotheses guided the study. The study adopted the descriptive survey research design. The population of the study comprised thirty-eight business educators in Federal College of Education (Technical), Asaba. There was no sampling. The instrument for data collection was a structured questionnaire. To ascertain the face validity of the instrument, the draft of the instrument was given to three experts. A test retest method was to establish the reliability of the instrument. Spearman's rank correlation was used to analyze the data and the coefficient of 0.79 was obtained suggesting a high reliability. The researcher administered and retrieved all 38 copies of the instrument which was used for analysis. The data collected were analyzed using mean and standard deviation to answer the research questions, while t-test was used to test the null hypotheses at 0.05 level of significance. The findings of the study revealed that to a very low extent, virtual teacher and Automatic Grading System are used in teaching Business Education courses in Federal College of Education (Technical), Asaba. The study recommended among other things that educational bodies should frequently make rooms for seminars and workshops where business educators can be adequately trained and retrained regularly on the use of artificial intelligence in teaching business education courses.

Keywords: Artificial Intelligence, Teaching, Business Education, Sustainable Global Economy.

Introduction

Business Education is an aspect of education which prepares students or recipients for the world of work at the pre-vocational, vocational and professional levels. Many schools of thoughts have conceptualized business education in various ways with virtually all the views of the authors similar in meaning. Manassy in Ekpenyong (2019), defined business education, as an aspect of the total education programme which promotes skills, knowledge and understanding for one's performance in the business world as a consumer or producer. Abdullahi (2018), stated that Business Education is concerned with the area of knowledge and competencies needed by an individual – skills, abilities, understanding, and attitudes that enable students to become a worthy human being and effective member of the business community. Similarly, Nwazor (2019), viewed business education as an aspect of learning that prepares individuals for roles in business and offers them knowledge about business. Business education empowers graduates with desired skills, knowledge and values that would make them to be self-employed or employable by others. Thus, Ajuluchukwu (2014), stated that business education which is an aspect of vocational education programme, is geared towards facilitating graduate employment. The author further added that business education programmes are relevant programmes for human growth, development and sustainability.

The role of business education teachers in realizing the objectives of business education cannot be over-emphasized. Khajloo (2019), opined that teachers are the executors and implementers of the educational policies and curriculum. Teachers are seen as the heart of

Nigeria educational system at all levels. Teachers are the major determinants of quality education, be it at primary, secondary or tertiary levels. The Revised National Policy on Education (2014), confirms that no educational system can rise above the quality of its teachers. The teacher is regarded as the key man in the entire educational programme. This implies that adequate attention should be paid to teacher's welfare in all its ramifications. The Teacher's Registration Council (TRC) Handbook (2019), sees a teacher as a person who has undergone approved professional training in education at appropriate levels capable of imparting knowledge, attitude and skills to the learner. From the foregoing, it can be said that the teacher is someone who teaches or transmits knowledge or skills to another less informed person. Therefore, the deliberate act of impacting knowledge to the learner is called teaching.

Teaching in its self is a concept central to education and any academic setting. There are various definitions of teaching as well as many activities that are involved in the teaching process. Nzeribe (2019), defined teaching as the conscious and deliberate effort by a mature or experienced person to impact information, knowledge, skills and so on to an immature or less experienced person, with the intention that the latter will learn or come to believe what is taught. Teaching means the various types of principles and methods of educating or instruction that is used to impact knowledge and skills on students by an educator. In the same vein, Owoh (2018), defined teaching as assisted performance beyond the zone of proximal development (assisting learners to perform beyond their current capacity). In view of the above assertions, teaching can be defined as a systematic activity designed by a teacher or educator to facilitate learning in order to enable learners construct worthwhile knowledge and skills.

Teaching has gone beyond the traditional classroom setting where the teacher impacts knowledge directly to the students, while the students are at the receiving end. Today, however, technology has helped to broaden the horizon. Communication between humans and technology has constantly been growing. The last decade has seen dramatic developments in the construction of Artificial Intelligence (AI) based systems. For instance, "Apple Siri", "Amazon Alexa", "Microsoft Cortana", and "Google Home Assistant" are chatbots that can respond to human voice commands (Xiaohong and Yanzheng, 2021). Moreover, AI technology has led to the development of humanoid robots that can talk to people, such as Erica and Sophia. Hiroshi Ishiguro and his colleagues, from Kyoto University and Osaka University, created the humanoid female robot Erica, which can engage in more human-like conversations and is deemed a fully autonomous android bot with very human-like qualities and expressivity, and with sophisticated multimodal sensing capabilities. Similarly, Sophia is a social intelligent humanoid robot that has a human-like appearance and behavior and is capable of interacting with people; it was "made by Hong Kong-based association Hanson Robotics" (Akib, et al 2019).

Artificial Intelligence (AI) is a branch of science which deals with helping machines find solutions to complex problems in a more human-like fashion. Mehrotra (2019), stated that Artificial Intelligence (AI) is a field of computer science that focuses on analyzing and creating intelligent devices and software. It is the science of programming a machine to think and act like intelligent humans. The intelligence component is the cornerstone of AI technology. According to Whitby (2019), AI seeks to understand intelligent behavior in people, animals, and technology. Artificial intelligence is made from the phrases "artificial" and "intelligence". The term "artificial" refers to something imitated but not wholly untrue in the sense of being a fake. At the same time, "intelligence" might replace actual goods because the former has superior characteristics (Ahmet, 2018).

Pokrivcakova (2019), being more specific to education sector explained that AI is as a results of many decades of research and development, bringing together system designers, data scientists, product designers, statisticians, linguists, cognitive scientists, psychologists, education experts and many others to develop education systems with some level of intelligence and ability to perform different functions, including to help teachers and support learners to develop their knowledge and flexible skills for a constantly changing world. These definitions are all

similar although in different forms because they are all emphasizing the development of machines to use programs and software that have some level of humanlike intelligence and abilities to perform human like functions as high as cognitive, learning, decision making, and adapting to the environment (Shroff, 2019).

There are many forms in which the use of AI in education takes; as web-based teaching and learning platforms, like instructions leveraging technologies such as virtual reality, gamification, animation, interactive video, simulations, robotics, video conferencing, audio visual files, and 3-D technology, virtual labs, computer programmes, facial recognition systems, social media-social network sites, micro blogging systems, and mobile applications (Marr, 2020), among others. Such AI products can bring great opportunities to teaching of Business Education by changing the way students learn and by increasing the productivity of Business Education teachers. Olasunkanmi (2020), stated that the use of AI in education has begun a long time ago in developed world and has gone through a lot of developmental stages and there are undeniable evidence of the numerous benefits administrators, educators and learners are enjoying from this integration.

On the effectiveness of using AI in teaching Business Education, Marr (2020), stated that AI makes inclusive and global classroom possible: with AI, instruction is placed online and made web-based which make learning available to all, overcoming social, physical, race, gender and international boundaries. For instance, virtual reality facilitates the learning process beyond the learning space to create a global classroom since AI can connect students to the virtual classroom. Business educators are assisted to make good lesson planning, preparation and equipped with appropriate learning materials to facilitate learning optimally (Lynch, 2019). In addition, AI could help students and learners in less time to achieve interactive and personalized learning. AI enhances learners' engagement and interactions with learning materials which is particularly very helpful in making the Business Education courses real and also through virtual labs, games, virtual teacher, automatic grading system, students could have hands-on learning that improves learning experiences and subsequently learning (Gera and Chadha, 2021).

At present, many countries in the world are very concerned about the application of artificial intelligence in education, particularly, how to make it beneficial to all communities (Zhu and Yang, 2021). Unfortunately, Nigeria has not really enjoyed much of it, especially in the area of using AI in teaching Business Education. This is because knowledge of artificial intelligence has not been fully localized and utilized (Olasunkanmi, 2020). Thus, the use of artificial intelligence in teaching Business Education in some tertiary schools is still at its early stage. In keeping with the passage of time however, the development trend of artificial intelligence in education is inevitable and more artificial intelligence technologies are more likely to be used in education in the near future (Marr, 2020). It is against this background that this study assessed artificial intelligence adoption in teaching Business Education courses in Federal College of Education (Technical), Asaba for sustainable global economy.

Statement of the Problem

The teaching of Business Education in Colleges of Education is expected to produce individuals and graduates that are capable of solving their problems as well as those of the society. Such individuals are also expected to be autonomous, confident and self-reliant. Unfortunately, this is not the case. Arubayi (2016), submitted that all is not well with the effective teaching of Business Education in Nigerian tertiary institutions because most teaching tend to lay extreme emphasis on content and the use of "chalk and talk" method. In other words, this negligent attitude of not adopting practical and activity-oriented method of teaching Business Education courses has led to abstraction which makes the students less active and more prone to rote. In addition, individual support provided by lecturers to students is nearly impossible making it more challenging for Business Education students to constantly engage in effective learning. This issue has become a serious concern to education planners, and policy

makers in Nigeria. Thus, the situation has created the need for more effective teaching methods to be explored. It is against this background that this study sought to assess artificial intelligence adoption in teaching Business Education courses in Federal College of Education (Technical), Asaba for sustainable global economy.

Purpose of the Study

The main purpose of the study is to assess artificial intelligence adoption in teaching Business Education courses in Federal College of Education (Technical), Asaba for sustainable global economy. In more specific terms, the study sought to;

1. determine the extent to which virtual teacher is used in teaching Business Education courses in Federal College of Education (Technical), Asaba for sustainable global economy.
2. find out the extent to which Automatic Grading System is used in teaching Business Education courses in Federal College of Education (Technical), Asaba for sustainable global economy.

Research Questions

The following research questions guided the study:

1. To what extent is virtual teacher used in teaching Business Education courses in Federal College of Education (Technical), Asaba for sustainable global economy?
2. To what extent is Automatic Grading System used in teaching Business Education courses in Federal College of Education (Technical), Asaba for sustainable global economy?

Hypotheses

The following null hypotheses are stated for this study:

1. There is no significant difference in the mean ratings of male and female Business Educators on the extent to which virtual teacher is used in teaching Business Education courses.
2. There is no significant difference in the mean ratings of Business educators on the extent to which Automatic Grading System is used in teaching Business Education courses based on experience.

Methodology

This study adopted the descriptive survey research design. Survey research design possesses great relevance of adoption when a researcher intends to describe conditions that already exists and intends to induce reasons for their prevalence. The population of the study comprised thirty-eight business educators in Federal Colleges of Education (Technical), Asaba, Delta State. Since the population was sizeable, there was no sampling. A researcher-developed questionnaire titled "Artificial Intelligence Adoption in Teaching Business Education Questionnaire (AIATBEQ)" was used to collect data. The 10 questionnaire items used in this study was structured using a four-point response scale with the following options: Very High Extent (VHE); High Extent (HE); Low Extent (LE); and Very Low Extent (VLE). To ascertain the face validity of the instrument, the draft of the instrument was given to three experts, two from the Department of Educational Foundations and one from the school of Business Education in FCE(T) Asaba. A test retest method was to establish the reliability of the instrument. Spearman's rank correlation was used to analyze the data and the coefficient of 0.79 was obtained suggesting a high reliability. The researcher administered and retrieved 38 copies of the instrument which were used for analysis. The data collected for this study were analyzed using mean and standard deviation to answer the research questions while t-test was used to test the

null hypothesis at 0.05 level of significance. Using the mean, a bench mark of 2.5 was used as a limiting score for acceptance while any score below 2.5 was rejected. On the other hand, a null hypothesis was accepted if the t.calculated value is less than the t.critical value. Where the reverse is the case, the null hypothesis was rejected.

Results

Research Question 1: To what extent is virtual teacher used in teaching Business Education courses in Federal College of Education (Technical), Asaba for sustainable global economy?

Table 1: Mean and Standard Deviation Scores of Responses on the Extent to which Virtual Teacher is used in Teaching Business Education Courses in Federal College of Education (Technical), Asaba for Sustainable Global Economy. (n= 38)

S/N	STATEMENT	$\bar{x}$	SD	REMARK
1.	The virtual teacher is used to answer the questions step by step for students and adjust the answers according to the feedback of the students until the student masters the knowledge learned.	1.21	0.41	VLE
2.	Virtual teacher is used to provide personalized, accurate responses in real-time which allows students to get answers to their questions quickly and accurately, without having to wait for a teacher to respond.	1.45	0.75	VLE
3.	Virtual teacher is used to create interactive learning experiences, allowing business education students to engage with the material in a more meaningful way.	1.39	0.71	VLE
4.	Virtual teacher is used to provide students with increased opportunities for practice and improvement, which is crucial for developing mastery of any subject.	1.32	0.57	VLE
5.	Virtual teacher AI tool is used by business educators to create more effective lessons plans as well as tailor their lessons accordingly.	1.42	0.82	VLE
	Grand Mean (SD)	**1.36**	**0.65**	**VLE**

Field survey data (2023).

Analyses on Table 1 reveals that the mean scores range from 1.21 – 1.45. This shows that the respondents rated very low extent to all the statements in items 1-5. Data in Table 1 further shows that the Grand Mean for the entire item is 1.36, and falls within the response option of very low extent. The Grand Mean score of 1.36 is evidence that the respondents rated very low extent on the items. This reveals that to a very low extent, virtual teacher is used in teaching Business Education courses in Federal College of Education (Technical), Asaba for sustainable global economy. The standard deviation score of 0.65 indicates that the respondents were homogenous in their response.

Research Question 2: To what extent is Automatic Grading System used in teaching Business Education courses in Federal College of Education (Technical), Asaba for sustainable global economy?

Table 2: Mean and Standard Deviation Scores of Responses on the Extent to which Automatic Grading System is Used in Teaching Business Education Courses in Federal College of Education (Technical), Asaba for Sustainable Global Economy. (N= 38)

S/N	STATEMENT	$\bar{x}$	SD	REMARK
6.	Automatic grading system is used to automate grading and provide personalized feedback to students and this allows teachers to spend more time focusing on teaching and less time on administrative tasks.	1.37	0.70	VLE
7.	Automatic grading system is used to solve many mechanically repeated daily tasks, such as correcting homework and correcting test papers, alleviating the pressure of teachers in various tasks.	1.87	0.34	VLE
8.	Automated grading system is used to provide students with additional resources and materials to help them improve.	1.63	0.48	VLE
9.	Automatic grading system adoption offers more objective grading that is more consistent, lowering the possibility of grading bias or errors.	0.71	0.60	VLE
10.	Automated grading system is used to track students' progress and provide personalized recommendations to help students reach their learning goals.	1.61	0.74	VLE
	Grand Mean (SD)	**1.44**	**0.57**	**VLE**

Field survey data (2023).

Analyses on Table 2 reveals that the mean scores range from 1.37 – 1.87. This shows that the respondents rated very low extent to all the statements in items 6-10. Data in Table 2 further shows that the Grand Mean for the entire item is 1.44, and falls within the response option of very low extent. The grand mean score of 1.36 is evidence that the respondents rated low extent on the items. This reveals that to a very low extent, automatic grading system is used in teaching Business Education courses in Federal College of Education (Technical), Asaba for sustainable global economy. The standard deviation score of 0.57 indicates that the respondents were homogenous in their response.

Hypotheses

Ho_1: There is no significant difference in the mean ratings of Business Educators on the extent to which virtual teacher is used in teaching Business Education courses in Federal College of Education (Technical), Asaba for sustainable global economy based on gender.

Table 3: Analysis of t-test on the Mean and Standard Deviation Responses of Lecturers on extent to which Virtual Teacher is Used in Teaching Business Education Courses in Federal College of Education (Technical), Asaba for Sustainable Global Economy Based on Gender.

Respondents	N	$\bar{x}$	S^2	df	t.cal	t.crit	α	Remark
Male	4	1.25	0.43	36	-3.088	2.028	.05	**Retain Ho**
Female	34	2.00	0.64					

From the t-test table, since t-cal (-3.088) < t-crit (2.028), retain Ho. The null hypothesis is hereby retained that there is no significant difference in the mean ratings of male and female Business Educators on the extent to which virtual teacher is used in teaching Business Education courses.

Ho_2: There is no significant difference in the mean ratings of Business educators on the extent to which Automatic Grading System is used in teaching Business Education courses based on experience.

Table 4: Analysis of t-test on the Mean and Standard Deviation Responses of Business Educators on the Extent to Which Automatic Grading System is used in Teaching Business Education Courses Based on Experience.

Location	n	$\bar{x}$	S^2	df	t.cal	t.crit	α	Remark
Low experience	11	1.73	0.62	36	-0.0602	2.0280	.05	**Retain Ho**
High Experience	27	1.74	0.64					

From the t-test table, since t-cal (-0.0602) < t-crit (2.0280), retain Ho. The null hypothesis is hereby retained that there is no significant difference between the mean rating of Business educators on the extent to which Automatic Grading System is used in teaching Business Education courses based on experience.

Findings

The findings of this study include the following:

1. To a very low extent virtual teacher is used in teaching Business Education courses in Federal College of Education (Technical), Asaba for sustainable global economy.
2. To a very low extent Automatic Grading System is used in teaching Business Education courses in Federal College of Education (Technical), Asaba for sustainable global economy.

Discussion

The finding of the study revealed that virtual teacher is used in teaching Business Education courses in Federal College of Education (Technical), Asaba for sustainable global economy to a very low extent. This shows that virtual teacher is not used to answer the questions step by step for students and adjust the answers according to the feedback of the students until the student masters the knowledge learned; virtual teacher is not used to provide personalized, accurate responses in real-time which allows students to get answers to their questions quickly and accurately, without having to wait for a teacher to respond; virtual teacher is not used to create interactive learning experiences, allowing business education students to engage with the material in a more meaningful way; virtual teacher is not used to provide students with increased opportunities for practice and improvement, which is crucial for developing mastery of any subject; and virtual teacher AI tool is not used by business educators to create more effective lessons plans as well as tailor their lessons accordingly. This finding is in line with Marr (2020), that the use of artificial intelligence in teaching Business Education in some tertiary schools is still at its early stage. He added however that in keeping with the passage of time, the development trend of artificial intelligence in education is inevitable and more artificial intelligence technologies are more likely to be used in education in the near future.

Finally, the finding revealed that to a very low extent Automatic Grading System is used in teaching Business Education courses in Federal College of Education (Technical), Asaba for sustainable global economy. This shows that for some reasons Automatic grading system is rarely used to automate grading and provide personalized feedback to students which tends to allow teachers spend more time focusing on teaching and less time on administrative tasks; it is not used to solve many mechanically repeated daily tasks, such as correcting homework and correcting test papers, alleviating the pressure of teachers in various tasks; automated grading

system is not used to provide students with additional resources and materials to help them improve; this makes it difficult for more objective grading that is more consistent, lowering the possibility of grading bias or errors; also automated grading system is not used to track students' progress which helps to provide personalized recommendations to help students reach their learning goals. This finding is in line with Olasunkanmi 2020 (2020), that Nigeria has not really enjoyed much of artificial intelligence (AI) tools especially in the area of using AI in teaching Business Education. He further opined that this is because knowledge of artificial intelligence has not been fully localized and utilized.

Conclusion

This study assessed artificial intelligence adoption in teaching Business Education courses in FCE(T), Asaba for sustainable global economy and based on the findings, it could be concluded that adoption of artificial intelligence in teaching Business Education courses in FCE(T), Asaba for sustainable global economy is still very low.

Recommendations

From the findings of the study, the following recommendations were made;

- Government and its relevant agencies should ensure adequate and incessant awareness creation of the need to adopt Artificial Intelligence in teaching and learning process, this way the threats and opportunities would be deliberated and gray areas cleared.
- Educational bodies should frequently make rooms for seminars and workshops where business educators can be adequately trained and retrained regularly on the use of artificial intelligence in teaching business education courses.

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