

Teaching Artificial Intelligence Tools Required Of Undergraduates for Communication and Digital Entrepreneurship In Public Tertiary Institutions In Rivers State

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Abstract: This study was on teaching artificial intelligence tools required of undergraduates for communication and digital entrepreneurship in public tertiary institutions in Rivers State. One research question guided the study and one null hypothesis was tested. Descriptive survey research design was adopted. From a population of 139 communication and entrepreneurship lecturers, a census survey sampling was employed. A four-point response options questionnaire was used for data collection, and it was validated by three experts. The reliability of the instrument was established using Cronbach’s alpha which yielded coefficient of 0.77. Mean and Standard Deviation were used to answer the research question and measure the spread in respondents’ opinions, while one-way analysis of variance (ANOVA) was used to test the null hypothesis at 0.05 level of significance. Findings revealed that all the types of AI tools stated were very highly required to be taught undergraduates for communication and digital entrepreneurship activities. Also, educational attainment plays vital roles in teaching AI tools to undergraduates for communication and digital entrepreneurship activities. Consequently, it was concluded that if AI tools are included in the curriculum and taught, it will transform the programmes positively, lead to AI skills development and enable the undergraduates to acquire employability skills. Among other things, it was recommended that AI tools should be included in communication and entrepreneurship curriculum through yearly internal curriculum review by lecturers in collaboration with their institutions and five years national review by all levels of government.

Keywords: Teaching, Artificial Intelligence Tools, Undergraduates, Communication, Digital Entrepreneurship.

Introduction

Communication has been transformed by artificial intelligence (AI), which also makes it possible for students in higher education to learn essential technological skills for success in both academic and professional endeavours. Students need AI-based communication tools to support collaboration, content production, and business connections in the wake of the growing emphasis on digital entrepreneurship (Dwivedi et al., 2021). The business climate appears to be changing along with many other sectors due to the amazing advancements made by artificial intelligence (AI).

Communication and digital entrepreneurship in particular are changing significantly because of AI’s capabilities and tools (Ukata & Amini, 2025). Considering the demands of successful business managers and future employment, business teachers need to give undergraduate students the skills they need to use AI tools for communication and digital entrepreneurship so they can engage in entrepreneurial activities effectively and efficiently (Ukata & Agburuga, 2024a).

Planning for Teaching and Teaching

According to Ukata, Wechie, and Nmehielle (2017), teaching planning is the process of preparing a mental image or framework of the type of classroom interaction that will occur between the instructor and students, students and objectives, and students

throughout instruction or teaching and learning sessions. Teaching planning entails anticipating the type of instruction, learning objectives, media and materials to be used, activities to be conducted, and degree of interaction in the classroom setting while taking the students’ ages into consideration (Ukata & Kalagbor, 2017). Teaching is the endeavour to help others gain information, entrepreneurial abilities, attitudes, concepts, or appreciation. According to Ukata and Silas-Dikibo (2019), teaching is also an interaction between teachers and students conducted under the teacher’s supervision with the goal of bringing about the desired behavioural change in the pupils. Teaching is a wonderful job; it involves imparting knowledge to students or helping them learn how to perform tasks in a certain way (Ukata & Nmehielle, 2020). It is a process of helping the learner acquire practical abilities, attitudes, concepts, and values in a planned and supervised setting that will enable the learner to become an independent adult and a member of society. According to Ukata and Silas-Dikibo (2021), learning follows teaching. According to Ukata (2019a), teaching is the process by which students and teachers share ideas on what should be learnt, how to learn it, what to use to learn it, and what to do with it.

Undergraduates

Students enrolled in courses that require artificial intelligence for communication and digital entrepreneurship at universities, polytechnics, and colleges of education are known as

undergraduates at tertiary institutions. They are students enrolled in National Diploma I and II, Higher National Diploma I and II at polytechnics, and Years 1, 2, 3, and 4 in educational institutions and universities. They require skills in artificial intelligence tools for employment as either employees or employers of labour in the workplace because they are young people and occasionally adults who are typically exposed to social and economic challenges like unemployment, thuggery, cultism, poverty, crimes, and criminality (Ukata & Okpokwasili, 2024).

Artificial Intelligence (AI)

In the view of Ukata and Agburuga (2024a, 2024b; Pattam, 2021), artificial intelligence (AI) is the theory and development of computer systems that can carry out tasks that require human intelligence, including business management, teaching, visual perception, speech recognition, decision-making, and language translation. The science of teaching machines to think and behave like people is known as artificial intelligence. Artificial Intelligence (AI) is a sophisticated subfield of information and communication technology (ICT) that uses hardware and software to mimic human capabilities (Ukata & Amini, 2024).

Artificial Intelligence Tools

Artificial intelligence (AI) tools are software programs that employ AI algorithms to carry out particular tasks and resolve issues that would often be handled by humans. Numerous industries, including healthcare, business, communication, finance, sales, marketing, picture generating, video production, education, and content development, can benefit from the application of AI solutions. In this age of digital enterprise, artificial intelligence has grown to be a significant component of both current and future generations. Conversationica, ChatGPT, Grammarly, business simulation, market research, and trend analysis are a few examples of these AI solutions (Geeksforgeek, 2024).

Entrepreneurship

Entrepreneurship is the systematic process of recognising societal issues, planning, pooling resources, and carrying out the strategy to address the issue and please customers in order to maintain customer loyalty and economic viability. In order to please clients and turn a profit, entrepreneurs must also recognise the demands (issues) of their surrounding environment and gather resources while taking measured risks (Ukata & Worgu, 2025; Ukata & Adejola, 2018). Although making money is the primary motivation for starting a business, entrepreneurs must learn how to satisfy their clients first in order to win their loyalty and ensure the long-term viability of the enterprise. In order to minimise losses at all times, entrepreneurs must also learn to take measured risks (Ukata, Kalagbor & Ochie, 2017). Innovation, creativity, and useful business skills for success are the goals of the efficacy and efficiency of entrepreneurial activities that emphasise developing entrepreneurial attitudes and capabilities. Since today's business environment is conducted online, it is necessary to learn AI tools in order to engage in digital entrepreneurship. The development of practical skills, technical abilities, company management skills, and personal entrepreneurial skills are among the general goals of an entrepreneurship education course (Ukata, 2019a).

Communication

According to Study (2025), communication is the practical transfer of knowledge from one individual, group, or location to another through speaking, writing, or the use of a media that facilitates

comprehension. There is at least one sender, one recipient, and one message in every communication. Since communication affects how individuals interact, sending a message from one person to another runs the danger of being impacted by a variety of factors. These include the setting, the communication medium, the cultural context, and the feelings at play. Nonetheless, communication facilitates interaction and the sharing of many facets of life, including commercial and entrepreneurial endeavours.

Digital Entrepreneurship

The type of business that uses the internet and cutting-edge digital technologies is known as "digital entrepreneurship." Traditionally, entrepreneurs were viewed as tiny business owners and inventors who used artificial intelligence to engage with small enterprises, such as stores and restaurants. Operating a business online is often referred to as digital entrepreneurship (Ukata & Amini, 2022). It includes a wide range of pursuits, including creating online courses, blogging, podcasting, and selling both digital and tangible goods. Technology is used by digital entrepreneurs to discover and satisfy clients, cut expenses, and work together (Mailchimp, 2024). This implies that using AI tools is the only way to do this business successfully and economically.

Artificial Intelligence Tools Required Of Undergraduates For Communication And Digital Entrepreneurship

Quillbot Paraphrasing Tool (AI)

An online writing platform called QuillBot paraphrase tool (AI) offers a number of strong capabilities that may be used to improve and polish writing. In addition to paraphrasing, summarising, and checking for plagiarism and grammar errors, QuillBot (AI) also translates, outlines, generates citations, and prepares researchers for success in academic settings, professional settings, and personal interactions (QuillBot, 2024). Palitt, which was developed to assist educators and students in creating "their own custom lecture series, syllabus, or textbook for teaching and learning," was one of the AI tools described in Online Degrees (2024) for use in the educational system. In 2016, the Georgia Institute of Technology unveiled Jill Watson, an AI-powered virtual teaching assistant for instruction. Another fantastic social media platform for classroom questions is Brainly. With the ability to transcribe up to 160 words per minute, Nuance is an excellent speech recognition program that both teachers and students utilise. It is especially beneficial for students who have accessibility concerns or who have trouble writing. Another artificial intelligence-powered solution for instructional design and content application that supports teaching and learning is Contents Technologies.

Similarly, the outlined are several areas of applications of AI in teaching and learning with benefits (Ukata & Agburuga, 2024a; Ukata & Agburuga, 2024b):

ChatGPT

This AI-powered chatbot tool provides immediate, interactive learning opportunities. For instance, using scenario-based learning, students can ask challenging questions about business and entrepreneurship education or receive feedback on plans pertaining to these topics. Custom chatbots that mimic student interactions, project questions, or company consultations are also beneficial for developing and delivering customer service skills

Personalized learning

The power of AI can be explored to customise learning paths for individual students, based on their strengths and weaknesses, learning styles, and interests.

Chatbots and virtual assistants

These are AI-powered chatbots and virtual assistants that provide students with instant answers to common questions, freeing up teachers and administrators to focus on more complex tasks.

Zotero (AI)

As your own research assistant, Zotero (AI) is a robust, user-friendly, open-access reference management tool that assists you in gathering, organising, citing, and disseminating your research sources. Teachers and students can save references from the internet, research databases, and library catalogues using Zotero. Researchers are investigating adding PDFs, photos, audio and video files, web page captures, and more. They are also creating bibliographies using the majority of the major citation styles and writing commentaries to attach to citations (Libraries Central Michigan University, 2024). Through automation and sophisticated decision-making systems, artificial intelligence is quickly changing industries and has applications in a wide range of sectors, including communication, entrepreneurship education, finance, automotive, entertainment, and more. With tools that improve learning, expedite processes, and foster critical thinking, artificial intelligence (AI) tools are quickly emerging as valuable resources in business and entrepreneurship education (Amesi & Peterside, 2024).

Accordingly, the following stated and explained are some of the AI tools needed by teachers and learners for effective communication and digital entrepreneurship activities (Ukata & Worgu, 2025; Ukata & Amini, 2025).

Business Simulations

Artificial intelligence simulation ventures offer business simulation settings where students and instructors of business and entrepreneurship education can practise making decisions in authentic business situations. By assisting students or graduates of business and entrepreneurship programs in understanding market dynamics, finance, and management, AI-driven simulations can also be utilised to enable them to operate virtual businesses.

Market Research and Trend Analysis

Crimson Hexagon, an artificial intelligence platform that examines online conversations and trends and offers data-driven insights for company management, empowered both professors and students. Google Trends and Think with Google, for instance, use artificial intelligence to assess search trends. These tools might also be used to assist students studying business and entrepreneurship in recognising new consumer trends and market demands. Students studying business and entrepreneurship will be proficient in trend analysis and market research in this way.

Financial Management

Financial software such as Xero and QuickBooks use artificial intelligence to provide financial reports, automate bookkeeping, and offer cash flow management insights. Additionally, Kabbage and Fundbox are AI-powered platforms that may provide students studying business and entrepreneurship with rapid access to operating cash via data-driven financing schemes.

Based Mentorship and Networking

This artificial intelligence-powered application is similar to MentoBot, a connecting tool that pairs students studying business and entrepreneurship with virtual mentors or coaches who provide counsel, feedback, and direction on a range of business-related topics. Students studying business and entrepreneurship could also use tools like LinkedIn to connect with the appropriate networks based on shared connections, industry trends, and hobbies.

Pitching and Funding

By providing feedback on presentation structure, storytelling, and investor interests, artificial intelligence software such as Pichbol could assist students studying business and entrepreneurship in honing their pitches. For example, The Gust is an AI-powered platform that may facilitate connections between students and recent graduates and investors by expediting the pitch process through data insights and matching features.

Subjects and Moderating Variables of the Study

The study's subjects are male and female instructors of entrepreneurship and communication who work in public tertiary institutions in Rivers State. They have varying degrees of education and years of experience as educators. According to Ezenwafor and Ukata (2022a), a lecturer's level of educational background, training and retraining, age, and teaching experience all affect how well they exhibit their understanding of AI tools. According to Ukata & Udeh (2022) and Ezenwafor & Ukata (2022b), lecturers with advanced degrees, such as PhDs and M.Sc./M.Ed., are predicted to have greater knowledge and proficiency with AI tools connected to teaching experience than those with HNDs or B.Sc./B.Ed. Because younger and more experienced lecturers are more likely to have them than older and less experienced ones, Ukata and Okeke (2023) and Ukata and Nmihelle (2022) asserted that age and teaching experience are two factors that influence lecturers' knowledge and skills in AI tools related to teaching experience. Furthermore, compared to lecturers with 6–10 and 1–5 years of teaching experience, those with over 10 years of experience teaching AI-related courses are expected to have more knowledge and skills to recognise the kinds of AI tools for efficient digital entrepreneurship and effective communication. As a result, the study examined how these respondents' years of teaching experience and educational background (three levels of moderating variables) affected their knowledge and proficiency in teaching AI tools necessary for digital entrepreneurship and communication in public tertiary institutions in Rivers state.

Statement of the Problem

The corporate environment appears to be one of the many areas that artificial intelligence (AI) is changing. AI's tools and skills appear to be significantly changing digital entrepreneurship and communication in particular. Given the demands of successful business managers and future employment, business educators must provide students with artificial intelligence (AI) tools to help them engage in entrepreneurial activities effectively and efficiently. Despite the availability of AI tools and their apparent advantages in educating students for successful and efficient digital entrepreneurship, professors do not seem to be proficient with them. Additionally, students do not appear to have the AI tools necessary for digital business. The lack of knowledge about the various AI tool types and the skills needed by undergraduates for digital entrepreneurship and communication may be related to the fact that AI tools are not part of the Core Curriculum and

Minimum Academic Standard for Nigerian University System (CCMAS) of the various programs published by the National Universities Commission in 2022, National Board for Technical Education (NBTE, 2009), and National Board for Colleges of Education (NBCE, 2012). Since no study has been conducted specifically for this purpose, the results of this one will fill the knowledge vacuum and give stakeholders concrete data to help them make decisions on connected topics.

Hypotheses

The following null hypotheses were tested at 0.05 level of significance:

1. There is no significant difference in the mean rating of male and female lecturers on the AI tools required to be taught undergraduates for communication and digital entrepreneurship based on their educational attainment.

Methodology

The study adopted a descriptive survey research design. Descriptive survey research design was deemed appropriate since it sought to obtain the views of communication and entrepreneurship lecturers on the topic. The population of the study was 139 lecturers selected from the Federal College of Education (Technical) Omoku (57), Rivers State University (21) and Ignatius Ajuru University of Education (12), Captain Elechi Amadi (30) (Office Technology and Management 14 and Mass Communication 16) and Ken Sarowiwa Polytechnic (10). Census survey technique was adopted to sample all the 139 communication and entrepreneurship lecturers because it was of manageable size. The instrument used for data collection was a self-designed four-point response options questionnaire titled "Teaching artificial intelligence tools for communication and digital entrepreneurship (TAITRCDE)". It contains one section which carries 14 items which were rated as very highly (4.50 - 5.00), highly (3.50 - 4.49), moderately (2.50 - 3.49), and lowly (1.50 - 2.49). The questionnaire was subjected to face and content validation by three experts from the Faculty of Education in Nnamdi Azikiwe University, Awka. The measure of internal consistency method was used to establish the reliability of the

instrument. The instrument was administered to 15 lecturers from the University of Uyo who were not part of the population of the study. Cronbach's alpha was applied to compute the reliability coefficient which yielded alpha value of 0.77. This high reliability coefficient shows that the instrument was reliable for the study as recommended by Nworgu (2015) that a research instrument with a reliability index of 0.70 and above is reliable. The researchers personally administered the copies of the questionnaire to the respondents in their schools with the help of three research assistants who were adequately briefed on the modalities to follow. The researchers first visited each of the tertiary institutions and sought consent from the relevant Heads of Department for the study. Thereafter, the researcher(s) and assistants visited each school and handed over the required number of copies of the instrument to the Heads of the Department to distribute to the lecturers for completion and, revisited after five working days to retrieve the completed copies. One hundred and ten copies of the instrument, representing 79%, were correctly filled, retrieved and used for the data analysis. The arithmetic mean and standard deviation were used to answer the one research question and ascertain how homogeneous or heterogeneous the respondents' opinions were relative to the questionnaire items and the aggregated mean. The one-way analysis variance (ANOVA) was used to test the null hypothesis at 0.05 level of significance. The ANOVA was used for the null hypothesis because it measured one categorical independent variable with three levels of moderating variables. A null hypothesis was accepted where the calculated significant (Sig.) value, (p- value) was greater than or equal to (\geq) the alpha value of 0.05. Otherwise, the null hypothesis was rejected. The data analysis was carried out using Statistical Package for Social Sciences (SPSS) version 25.

Result Presentation, Analysis and Discussion

Research Question 1

What are the artificial intelligence tools required to be taught undergraduates for communication and digital entrepreneurship in public tertiary institutions in Rivers state?

Table 1: Artificial intelligence tools required to be taught undergraduates for communication and digital entrepreneurship

SN	Artificial Intelligence Tools For Communication And Digital Entrepreneurship.	\bar{X}	SD	Remarks
1	ChatGPT and Chatbots are online customers and learners support	4.53	.81	Very Highly
2	Intelligent tutoring systems provides feedback to students, adapt to their individual learning needs, and track their progress.	4.54	.84	Very Highly
3	Text to image converter (I love my pdf) assist to convert documents of different forms into different format for use	4.52	.88	Very Highly
4	Turnitin is for anti-plagiarism detection and academic fraud	4.51	.92	Very Highly
5	AI-direct see the learner-as-recipient during teaching and learning	4.52	.82	Very Highly
6	AI-supported see the learner-as- collaborator during teaching and learning	4.54	.81	Very Highly
7	AI-empowered see the learner-as-leader in teaching and learning	4.52	.80	Very Highly
8	Quillbot paraphrasing tool assist to summarizes sentences, checks grammar and plagiarism, translate and create citations	4.51	.85	Very Highly
9	Palitt assists instructors to easily create "their own custom lecture series, syllabus or textbook.	4.52	.81	Very Highly

10	Contents Technologies assist in instructional design and contents creation	4.51	.85	Very Highly
11	Personalized learning AI is used to create customized learning paths for individual students	4.51	.84	Very Highly
12	Intelligent tutoring systems track learners progress and gives feedback	4.52	.88	Very Highly
13	Student performance prediction predicts which students may be at risk of falling behind and intervene early	4.52	.92	Very Highly
14	Zotero helps you to organize, cite, reference and share your research sources.	4.52	.81	Very Highly
Aggregate Mean		4.52		Very Highly

Table 1 shows that all the 14 different types of AI tools stated were very highly required to be taught undergraduates for communication and digital entrepreneurship, with mean scores that ranged from 4.51 to 4.54. The aggregated mean score of 4.52 also shows that all the different types of AI tools stated were very highly required to be taught undergraduates for communication and digital entrepreneurship courses. The standard deviations for the 14

listed items ranged within 0.80 to 0.92 which shows that respondents were homogeneous in their opinions that all the AI tools stated were very highly required to be taught undergraduates for communication and digital entrepreneurship in public tertiary institutions in Rivers State.

Hypothesis Testing

Table 2: ANOVA summary of lecturers on AI tools required to be taught undergraduates for communication and digital entrepreneurship based on their educational attainment.

Sources of Variance	Sum of Squares	Df.	Mean Square	F-cal.	Sig.	Decision
Between Groups	1.841	2	.750	1.281	.292	Accept H_{01}
Within Groups	47.959	108	.694			
Total	47.600	110				

Data on Table 2 shows a calculated F-value of 1.28 with a significant (sig.) p-value of 0.29 which is greater than the alpha value of 0.05 ($0.29 > 0.05$) at degrees of 2 and 108. Therefore, the null hypothesis (H_{01}) was accepted. This means that male and female lecturers do not differ in their mean rating on the AI tools required to be taught undergraduates for communication and digital entrepreneurship based on their educational attainment.

Discussion

The findings of the study show that all the different types of AI tools stated were very highly required to be taught undergraduates for communication and digital entrepreneurship courses. The finding agrees with Crescenzi-Lanna (2023), Amesi and Peterside (2024), and Nwadiuto (2024) who argued that AI in communication, businesses and schools offer multiple possibilities for business owners, school teachers, administrators and students. One example is ChatGPT, the latest version, GPT-4, which is usually integrated into software such as Microsoft Office, Edge, and Bing for optimizing educational tasks. The fact that all the lecturers indicated that AI tools stated were very highly required to be taught undergraduates for communication and digital entrepreneurship courses is a serious call that they should be urgently included in the communication and entrepreneurship curriculum, and lecturers should do internal inclusion during teaching and learning while waiting for national curriculum review to enable learners acquire the skills to reduce the high rate of unemployment. Findings of the study further show that male and female lecturers do not differ in their opinions on the AI tools required to be taught undergraduates for communication and digital entrepreneurship based on their educational attainment. This finding corresponds with the report of Ezenwafor and Ukata (2022a) who postulated that how well know the AI tools required to be taught undergraduates for communication and digital

entrepreneurship courses depend on their level of educational qualification, training and retraining. The finding concurs too with the opinions of Ukata and Okeke (2023), Ezenwafor and Ukata (2022b), and Ukata and Nmiehelle (2022) who claimed that teaching experience and age are among the factors that influence lecturers' knowledge and skills on knowing the required AI tools to be taught undergraduates because, younger lecturers are more likely to possess them than older ones. The fact that all the lecturers indicated that teaching experience and age are factors that influence AI tools shows that younger lecturers with the best academic qualifications and experience should be employed to teach communication and digital entrepreneurship courses in public tertiary institutions.

Conclusion

Based on the findings that emanated from the discussions of the study, it was concluded that if the various learners are taught all the AI tools, it will lead to effective communication and digital entrepreneurship skills development, transform the programmes positively, leading learners to acquire the needed employability skills for the global workplace. Additionally, it was concluded that educational attainment played vital roles in teaching artificial intelligence tools required of undergraduates for communication and digital entrepreneurship for employability skills development and possible jobs creation. It was also concluded that because the needed AI tools will be acquired by undergraduates, if included and taught to learners properly, it will assist drastically to reduce the high rate of unemployment among graduates in public tertiary institutions in Rivers State in particular and Nigeria in general. Finally, it was concluded that it will be very difficult to teach undergraduates AI tools for communication and digital entrepreneurship skills development without great academic qualification and youthful energy to deliver the lectures.

Recommendations

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

1. AI tools should be included during the teaching of communication and digital entrepreneurship courses through yearly internal curriculum review by lecturers in collaboration with the authorities of their various institutions. Federal, state and local governments should provide enough funding for the procurement of AI equipment (Smart assistants (e.g. Apple's Siri, Google Now, Amazon's Alexa, and Microsoft's Cortana and Automated financial investing Healthcare management) to enable lecturers and students access them for better teaching and learning experience. Heads of institutions running business education programmes should fund the procurement of AI's facilities via internally generated revenue.
2. Since whatever knowledge one acquires remains with the person, communication and digital entrepreneurship lecturers should make personal sacrifices from their earnings and engage in AI tools training through online and offline short courses to acquire the needed skills in AI tools for communication and digital entrepreneurship as well as sustain and remain relevant in their areas of operations. Tertiary institutions running communication and digital entrepreneurship should send lecturers on AI tools specialized training to gain the needed skills since the training may be expensive for lecturers to bear.

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