Emerging Technologies Adoption for Improved Job Efficiency in a Knowledge -Driven Work Environment

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Abstract
This study focused on the readiness of Business Education postgraduate students to adopt emerging technologies for improved effectiveness in a knowledge-driven work environment. The study was guided by two specific objectives, research questions, and hypotheses. A descriptive survey design was adopted. The population consisted of 111 Business Education postgraduate students from two state universities offering Business Education programs. Since the population was manageable, no sampling was done. The data collection instrument was a questionnaire developed by the researcher and validated by three Business Education experts from Rivers State University. The test-retest method using Pearson Product Moment Correlation Coefficient (PPMCC) determined the instrument's reliability, yielding a coefficient of 0.89 meaning that the instrument is reliable for the study. All the 111 retrieved copies of the instruments were analyzed. Mean and Standard Deviation were used to answer the research questions, while a t-test was used to test the hypotheses at a 0.05 significance level. The findings revealed that postgraduate students in Rivers State universities agreed to a high extent that they are ready to adopt cloud-based platforms and artificial intelligence for improved job efficiency in a knowledge-driven work environment. Based on the findings, it was recommended that: Administrators of Business Education programs should create opportunities for professional development through cloud-based platforms to enhance effectiveness in a knowledge-driven work environment, all Business Education postgraduate and undergraduate students should be mentored on using cybersecurity, as it is crucial for work job efficiency and educational planners should integrate artificial intelligence into the Business Education program, as it is a trending area needed for work effectiveness in a knowledge-driven work environment.

***Keywords**: Business Education Postgraduate Students Readiness, Emerging Technologies, Improved Effectiveness in a Knowledge -Driven Work Environment, Cloud Based Platforms, Artificial Intelligence.*

Introduction

The world is experiencing rapid technological advancements that are transforming business methods and manufacturing firms are witnessing fewer workers due to increased plant automation as robots move items in warehouses, technologies like Google's driverless car are in use as they navigate to any route and destinations it is programmed to move to. Simpler technologies such as the Web and artificial intelligence have dramatically affected employment, displacing many white-collar workers. Consequently, jobs in the post office and customer service have disappeared (Rotman, 2013).

Gates in El Badawy, Marwan, and Magdy (2015), argued that knowledge workers are the brains of a company and must be connected to the company's critical data. He believes that if workers can access the right information quickly, and if the right people work on this data, the company will gain a significant advantage. Gates further asserts that digital information flow empowers employees to achieve and maintain a competitive edge, marking a revolutionary change in process structures since mass production's introduction. This digitization impacts the organization's knowledge management components technology represented by the digital age, and the right people working on it will improve work processes. Gates is a major supporter of introducing technology into businesses, stating that while the industrial age extended physical capacities, the digital age extends mental capacities. He asserts that a business with a digital nervous system can define its future role, with success or failure depending on the leader's use of emerging technologies.

The term "emerge" or "emergent" means "the process of coming into being or becoming important and prominent" (New Oxford American Dictionary in El Badawy, Marwan, & Magdy, 2015) or "to rise up, come forth, become evident, or come into existence" (the American Heritage Desk Dictionary & Thesaurus in El Badawy, Marwan, & Magdy, 2015). Emergence is not a static property but a process, with the endpoint described as visible, evident, important, or prominent. Scholars disagree on whether mere existence is enough for emergence or if a certain level of prominence is required. A second definition of "emergent" by New Oxford American Dictionary describes it as a property arising from complex causes and not simply analyzable as the sum of their effects.

Emerging technologies are those still in development or being applied in practical ways, with their full potential not yet realized. These technologies can be entirely new or involve innovative uses of older technologies, and they have the potential to disrupt current practices. Key characteristics include being radically new or innovative, experiencing rapid growth, having a clear direction, making a significant impact, and being surrounded by uncertainty and ambiguity. Emerging technologies significantly influence various aspects of society and the economy, though their impact is often unpredictable in early stages.

The first defining attribute of emerging technology involves the introduction of innovation or newness (Small, Boyack & Klavans, 2014). Emerging technologies may involve discontinuous innovations derived from radical innovations (Day & Schoemaker in Rotolo, Hicks & Martin, 2015). They refer to new research activities in science and technology (Small, Boyack & Klavans, 2014). Emerging technologies are new and innovative technologies in early development stages with the potential to significantly impact various industries. These include advancements in artificial intelligence, cloud-based platforms, cybersecurity, machine learning, blockchain, virtual reality, and the Internet of Things (IoT). This study focuses on artificial intelligence and cloud-based platforms.

Artificial Intelligence (AI) is a digital technology advancement with the potential to transform society (Bupo & Akpomi, 2023). AI enables computers and machines to simulate human intelligence and problem-solving capabilities (IBM Cloud Education, 2020). AI consists of codes and programs that allow machines to execute commands and functions with minimal human interference (Mona, Rohit, Anton, & Uthayasankar, 2022). In developed countries, AI and robots perform many routine functions. Suo (2021) noted that China's robotics industry, powered by AI, has advanced significantly, replacing humans in repetitive and dangerous tasks. AI replicates human intelligence patterns in computer systems, codes, or machines to act and reason like humans. McCarthy in Bupo & Akpomi (2023) describes AI as the science and engineering of creating intelligent machines, especially intelligent computer programs, to simplify daily tasks. IBM Cloud Education (2020) defines AI as a field of study that combines robust datasets with computer science to create problem-solving functions.

Cloud-based platforms are increasingly popular in knowledge-driven work environments, providing centralized locations for storing and accessing information, collaboration tools, and data analytics capabilities. These platforms allow organizations to manage data and apply over the internet rather than on local servers or personal computers, offering increased collaboration, flexibility, scalability, and cost-effectiveness. Ahmad, Muhammad, & Muhammad (2019) describe cloud-based platforms as the delivery of on-demand computing resources over the internet on a pay-for-use basis. Sadeghzadeh, Haghshenas, Nassiriyar, and Shahbazi (2014) explain that users can access resources via the internet as a web service instead of installing them on personal computers, which relieves users from technicalities concerning data sharing on the internet.

Readiness is a powerful factor in successfully adopting emerging technologies in a knowledge-driven work environment, because emerging technologies makes it easier for graduates and students to carry out their day-to-day activities easily. The readiness of students, professors, and technology is the most significant aspect in this context. Hussein in Atousa, Zahra, & Mohammad (2016) emphasizes that people's attitudes, especially students, are crucial for e-learning success. Darab & Montazer in Atousa, Zahra, & Mohammad (2016) define readiness as the level of community readiness to participate in the networked world.

Business Education Postgraduate Students' Readiness to Adopt Emerging Technologies refers to their preparedness and willingness to embrace new technologies in their academic and professional endeavors. Factors influencing this readiness include prior experience with technology, attitudes towards technology, perceived usefulness of technology in their field of study, and the availability of resources and support for technology integration in a knowledge-driven work environment.

A knowledge-driven work environment means that knowledge workers, who primarily use their intellect and expertise to perform their jobs, spend significant time seeking information. These workers are often separated from their supervisors, working in different departments, time zones, or remote locations like home offices and airport lounges. Knowledge work involves tasks requiring specialized knowledge and skills, often necessitating the creation of new knowledge to progress. Unlike physical labor, knowledge work focuses on generating knowledge to add value. Knowledge workers are highly educated individuals specializing in particular fields, using their cognitive abilities to address complex challenges. The term "knowledge workers" is broad, requiring various levels of understanding to grasp its full meaning.

Statement of the Problem

Today's office activities have shifted to emerging technologies like cloud-based platforms and artificial intelligence. These technologies have improved work quality, making it faster, easier, and more accurate. Emerging technologies help graduates and individuals update their skills to operate successfully in modern offices and gain a competitive edge in the job market. Offices are now embracing these new tools for improved office activities.

Despite the need to be equipped with emerging technologies for global competitiveness, some Business Education students are not up-to-date with these technologies. This issue requires urgent attention because emerging technologies are essential for today's work environment. Students who cannot use these technologies may struggle to function effectively in a knowledge-driven office. The inability of some postgraduate students to use emerging technologies may stem from their reluctance to shift from traditional paper-and-pen methods to modern, tech-driven offices. Even when these technologies are available for teaching and learning, they are often underused. As a result, Business Education graduates often lack the basic competencies needed to use emerging technologies in modern offices. According to Ukata and Amini (2022), many Business Education graduates struggle to use these technologies when employed in a modern office. Those who can use them usually learned from their institutions or on their own, but they are few compared to the number of Business Education graduates each year. Some graduates still rely on traditional office operations, ignoring emerging technologies. This scenario shows a significant knowledge gap that needs to be addressed. Therefore, this study aims to investigate Business Education postgraduate students' readiness to adopt emerging technologies for improved job efficiency in a knowledge-driven work environment. This challenge is a gap the study seeks to fill empirically.

Purpose of the Study

The purpose of this study was to examine Business Education Postgraduate Students Readiness to Adopt of Emerging Technologies for Improved Job Efficiency in a Knowledge -Driven Work Environment. Specifically, the study sought to:

1. Determine the extent to which Business Education Postgraduate Students are ready to adopt Cloud-Based Platforms for Improved Job Efficiency in a Knowledge -Driven Work Environment in Rivers State Universities.

2. Determine the extent to which Business Education Postgraduate Students are ready to adopt Artificial Intelligence for Improved Job Efficiency in a Knowledge -Driven Work Environment in Rivers State Universities.

Research Questions

The following research questions were raised to guide the study:

1. To what extent are Business Education Postgraduate Students ready to adopt Cloud-Based Platforms for Improved Job Efficiency in a Knowledge -Driven Work Environment in Rivers State Universities?
2. To what extent are Business Education Postgraduate Students ready to adopt Artificial Intelligence for Improved Job Efficiency in a Knowledge -Driven Work Environment in Rivers State Universities?

Hypotheses

The following hypotheses were formulated and tested at 0.05 significant level

1. There is no significant difference in the mean rating of Business Education Postgraduate Students of Rivers State University and Ignatius Ajuru University of Education on the extent to which Students are ready to adopt Cloud-Based Platforms for Improved Job Efficiency in a Knowledge -Driven Work Environment in Rivers State Universities.
2. There is no significant difference in the mean rating of Business Education Postgraduate Students of Rivers State University and Ignatius Ajuru University of Education on the extent to which Students are ready to adopt Artificial Intelligence for Improved Job Efficiency in a Knowledge -Driven Work Environment in Rivers State Universities.

Methodology

The research design adopted for this study was a descriptive research design, which established the significance difference between Business Education postgraduate students' adoption of emerging technologies for improved job efficiency in a knowledge -driven work environment in Rivers State Universities.

Table 1.1: Population Distribution of the Respondents in Rivers State University, Port Harcourt and Ignatius Ajuru University of Education, Port Harcourt.

S/NO	Name of Institutions	Department	No. of Ph.Ds.	No. of Masters	TOTAL
1	Rivers State University, Port Harcourt	Bus.Edu.	12	30	42
2	Ignatius Ajuru University of Education, Port Harcourt	Bus. Edu.	23	46	69
			35	**76**	**111**

Grand Total

Source: Exams and Records Officer, 2022/2023 Academic year

The population was chosen because the two universities offer Office Management and Technology education in postgraduate programs. No sampling technique was adopted since the sample size was small and manageable. The researcher developed a self-structured instrument titled "Business Education Postgraduate Students Readiness to Adopt Emerging Technologies for Improved Effectiveness in a Knowledge-Driven Work Environment" (QBEPSRAETIEKWE) for data collection. The instrument underwent face and content validation by three experts in business education from the Faculty of Education at Rivers State University, Port-Harcourt. These experts reviewed and restructured the instrument for clarity, relevance, and appropriateness. All corrections and input from the experts were used to modify the research instrument. The study used a 4-point rating scale: Very High Extent (VHE-4 points), High Extent (HE-3 points), Moderate Extent (ME-2 points), and Low Extent (LE-1 point). To establish the instrument's reliability, the test-retest method using the Pearson product-moment correlation coefficient was applied to postgraduate Business Education students from the University of Uyo, who were not part of the study population. A reliability coefficient of 0.89 was obtained, indicating that the instrument was reliable for this study. Data collected were organized and analyzed based on the research questions and hypotheses formulated to guide the study. The research questions were answered using Mean and Standard Deviation, while the null hypotheses were tested at a 0.05 level of significance using t-test statistics. The decision rule was that any mean above 2.50 indicated a high extent, while a mean below 2.50 indicated a low extent. The null hypotheses were retained if the critical t-value was greater than the calculated t-value; otherwise, the alternate hypothesis was accepted

Analysis of Data, Results and Hypothesis Testing

Research Question 1: To what extent are Business Education Postgraduate Students are ready to adopt Cloud-Based Platforms for Improved Job Efficiency in a Knowledge -Driven Work Environment in Rivers State Universities?

Table 1.1 Mean Response on the extent Business Education Postgraduate Students are ready to adopt Cloud-Based Platforms for Improved Job Efficiency in a Knowledge -Driven Work Environment in Rivers State Universities

(N=111)

S/N	ITEMS	$\bar{x}$	S.D	Remark
1.	I am willing to host my documents on cloud-based platforms like dropbox, one drive, google drive and so on.	3.44	0.70	HE
2.	I Know how to recover my files online from any part of the world	3.47	0.63	HE
3	I Know how to save my files online	3.50	0.50	HE

4	I Know how to use two step password to code my documents online for security reasons	3.63	0.62	HE
5	I Know how to set my cloud-based platforms to update my documents **automatically**	3.42	0.63	HE
	Grand Mean & S.D	**3.49**	**0.62**	HE

Source: SPSS Version 23 (2024)

The result in table 1.1 shows that Business Education postgraduate students are ready to adopt Cloud-Based Platforms for improved job efficiency in a knowledge -driven work environment to a high extent, with all the items above 2.50, the grand mean scores of 3.49 and Standard Deviation 0.62 respectively.

Research Question 2: To what extent are Business Education Postgraduate Students are ready to adopt Artificial Intelligence for Improved Job Efficiency in a Knowledge -Driven Work Environment in Rivers State Universities?

Table 1.2 Mean Response on the extent Business Education Postgraduate Students are ready to adopt Artificial Intelligence for Improved Job Efficiency in a Knowledge -Driven Work Environment in Rivers State Universities
(N=111)

S/N	ITEMS	$\bar{x}$	S.D	Remark
1.	I can use Grammarly to check and correct grammatical errors in my documents	3.52	0.72	HE
2.	I can use ChatGPT for getting business related information	3.45	0.61	HE
3	I can use Quilbot in paraphing and arranging client documents in the office	3.18	0.79	HE
4	I can use chatAI to edit information sent to customers	3.43	0.63	HE
5	I can use plagiarism remover to check the originality of documents received from other organizations	3.44	0.79	HE
6	I can use Ask AI to summarize official information for presentation in my organization	3.44	0.57	HE
	Grand Mean & S.D	**3.41**	**0.69**	HE

Source: SPSS Version 23 (2024)

Data contained in table 1.2 shows that Business Education Postgraduate Students are ready to adopt artificial intelligence for improved job efficiency in a knowledge -driven work environment to a high extent. with all the items above 2.50, the grand mean scores of 3.41 and Standard Deviation 0.69 respectively.

Hypotheses

Hypotheses 1: There is no significant difference in the mean rating of Business Education Postgraduate Students of Rivers State University and Ignatius Ajuru University of Education on

the extent to which Students are ready to adopt Cloud-Based Platforms for Improved Job Efficiency in a Knowledge -Driven Work Environment.

Table 1.3: Computation of difference in mean ratings between Business Education Postgraduate Students of Rivers State University and Ignatius Ajuru University of Education on the extent to which Students are ready to adopt Cloud-Based Platforms for Improved Job Efficiency in a Knowledge -Driven Work Environment

(N=111)

Respondents	N	$\bar{x}$	SD	t-cal.	t- crit.	Df	α	Decision
RSU	42	3.59	0.28	1.422	1.671	109	0.05	Accepted
IAUE	69	3.43	0.28					

Source: SPSS Version 23 (2024)

The data in table 1.3 showed the t-calculated value of 1.422 at 109 degree of freedom and 0.05 level of significance, with the t-critical value 1.671. The null hypothesis was upheld because t-critical is higher than the t-calculated. This implies that there is no significance difference between Business Education Postgraduate Students of Rivers State University and Ignatius Ajuru University of Education on the extent to which Business Education Postgraduate Students are ready to adopt cloud-based platforms for improved job efficiency in a knowledge -driven work environment.

Hypotheses 2: There is no significant difference in the mean rating of Business Education Postgraduate Students of Rivers State University and Ignatius Ajuru University of Education on the extent to which Students are ready to adopt Artificial Intelligence for improved job efficiency in a knowledge -driven work environment.

Table 1.4: Computation of difference in mean ratings between Business Education Postgraduate Students of Rivers State University and Ignatius Ajuru University of Education on the extent to which Students are ready to adopt Artificial Intelligence for Improved Job Efficiency in a Knowledge -Driven Work Environment

(N=111)

Respondents	N	$\bar{x}$	SD	t-cal.	t. crit.	Df	α	Decision
RSU	42	3.70	0.29	1.380	1.671	109	0.05	Accepted
IAUE	69	3.23	0.34					

Source: SPSS Version 23 (2024)

The data in table 1.4 showed the t-calculated value of 1.380 at 109 degree of freedom and 0.05 level of significance, with the t-critical value 1.671. The null hypothesis was upheld because t-critical is higher than the t-calculated. This implies that there is no significance difference between

Business Education Postgraduate Students of Rivers State University and Ignatius Ajuru University of Education on the extent to which Business Education Postgraduate Students are ready to adopt artificial Intelligence for improved job efficiency in a knowledge-driven work environment.

Discussion of findings

Research Question and Hypothesis 1: Cloud-Based Platforms

The findings of the study revealed that Business Education postgraduate students in Rivers State Universities are willing to use cloud-based platforms like Dropbox, OneDrive, and Google Drive. They know how to recover files online from anywhere in the world, save files online, use two-step password authentication for security, and set cloud-based platforms to update documents automatically. These capabilities contribute to improved effectiveness in a knowledge-driven work environment. The findings align with Stergiou and Psannis (2017), who found a positive relationship between cloud-based platforms and effectiveness in such environments. They noted that cloud-based platforms offer benefits like high computational power, reduced infrastructure and maintenance costs, and on-demand storage capacity. Cloud computing involves storing and processing data beyond the user's devices, with data traversing through remote databases.

Research Question and Hypothesis 2: Artificial Intelligence

The findings showed that students can use AI tools like Grammarly to check and correct grammatical errors, ChatGPT for business-related information, Quillbot for paraphrasing and organizing client documents, chatAI to edit information sent to customers, plagiarism checkers to ensure the originality of documents, and Ask AI to summarize official information for presentations. Mentoring students in using these tools can help them develop a broader perspective on career options and opportunities. This result aligns with Bupo and Akpomi (2023), who stated that AI has the potential to transform society and recommended that the government should fund AI and robotics development in education**.**

Conclusion

Emerging technologies play a crucial role in enhancing effectiveness in knowledge-driven work environments. These technologies, including artificial intelligence (AI), cybersecurity, and cloud-based platforms, empower organizations and individuals to gather, process, and use information more efficiently. This leads to better decision-making, innovation, and productivity. By leveraging these technologies, Business Education students can adapt to rapid changes, stay competitive, and foster a culture of continuous learning and improvement. It's essential for businesses and Business Education students to stay updated on emerging technologies and invest in the necessary infrastructure and training to harness their full potential in driving effectiveness in today's knowledge-driven work environments.

This research examines the readiness of postgraduate Business Education students to adopt emerging technologies for improved effectiveness in a knowledge-driven work environment. The study may offer insights into the strategies needed to effectively integrate emerging technologies into business education programmes, preparing students for the evolving demands of the modern workplace.

Recommendations

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

1. Administrators of Business Education programmes should create opportunities for professional development through cloud-based platforms to enhance students' job efficiency in a knowledge-driven work environment.
2. Educational planners should integrate artificial intelligence into Business Education programs, as it is a trending area necessary for job efficiency in a knowledge-driven work environment.

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