Greekline PUBLICATIONS
AND
ACADEMIC JOURNALS

Official Publication of
GREEKLINE CONSULTING ENTERPRISE,
34 Emekuku Street, D/Line
Port Harcourt, Rivers State.
Email: greeklinepulicationsajournal@gmail.com
Tel: 09012607405
Web: www.greeklinepublications.org

ISSN: 2795393X

Complimentary Edition

GREEKLINE PUBLICATIONS AND ACADEMIC JOURNALS

ISSN: 2795393X

Published by
GREEKLINE CONSULTING ENTERPRISE,
34 Emekuku Street, D/Line,
Port Harcourt, Rivers State.
Email: greeklinepulicationsajournal@gmail.com
Tel: 09012607405
Web: www.greeklinepublications.org

Design & Printed in Nigeria by:
Damazokee Concepts

GREEKLINE PUBLICATIONS AND ACADEMIC JOURNALS

EDITORIAL BOARD

Dr. Walele Chimene
Department of Science Education
Faculty Education,
Ignatius Ajuru University of Education.
Rumuolumeni, Rivers State, Nigeria.

RESEARCH ASSISTANTS

Owakah Nkeiruka Faith
Department of Finance,
Faculty of Management and
Administration, Rivers State University,
Rives State, Nigeria.

Emeghara Angel
Department of Business Education,
Faculty Education,
Ignatius Ajuru University of Education.
Rumuolumeni, Rivers State, Nigeria.

Editorial Message

GREEKLINE Publications and Academic Journals is an official publication of the **Publication of the GREEKLINE CONSULTING ENTERPRISE** , 34 Emekuku Street, D/Line, Port Harcourt, Rivers State. . The Editorial Board of the Journal will consider for publication:

1. Article that will improve knowledge of teaching/ learning process across different disciplines.
2. Theoretical and philosophical articles.
3. Critical review of literatures.
4. Articles on contemporary issues.

GREEKLINE Publications and Academic Journals is designed to promote innovation in education and most importantly provide recommendations for the betterment of man and society. Articles sent to **GREEKLINE Publications** is enlisted in the following sections; Greekline Journal Business and Entrepreneurial Development, Greekline Journal of Communication and Advance Technology, Greekline Journal of Finance and Economic Development, Greekline Journal Innovative Agriculture, Greekline Journal of Innovative Education, Greekline Journal of Management and Administrative Studies, Greekline Journal of Office and Information Management.

GREEKLINE Publications and Academic Journals does not assume responsibility for the point of view or the options expressed by the contributors. This implies that all liabilities that may arise in any article herein is solely that of the contributing authors. **GREEKLINE Publications** is committed to fast review and publications of papers.

All correspondence regarding this issue should be sent to:

MANAGING EDITOR
Dr. Kelechi Da-Kaladokudo Wokocha
Greekline Consulting Enterprise,
34 Emekuku Street, D/line, Port Harcourt
kelechiwokocha@yahoo.ca
07063743118

CONTENTS

Greekline JOURNAL OF BUSINESS AND ENTREPRENEURIAL DEVELOPMENT

Greekline PUBLICATIONS AND ACADEMIC JOURNALS

ISSN: 279393X

ARTIFICIAL INTELLIGENCE PRECEPTS AND IMPROVED ORGANIZATIONAL PRODUCTIVITY OF SMALL AND MEDIUM SCALE ENTERPRISES IN PORT HARCOURT METROPOLIS

OHAKA, Nyeche Christopher & NWOSU-CHUKWUDI, Chioma E.

Department of Business Education,
Faculty of Education
Ignatius Ajuru University of Education,
Rumuolumeni Port Harcourt

ABSTRACT

The study investigated artificial intelligence precepts and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis. Three specific objectives were set, three research questions were answered and three null hypotheses were tested at 0.05 level of significance. The study adopted a correlational design. The population of the study was Six thousand eight hundred and thirty-eight (6,838) small and medium scale enterprises in Port Harcourt metropolis. The Taro Yamane sampling method was used to determine the sample size of 400. Two self-structured questionnaires titled: "Artificial Intelligence Precepts Questionnaire" (AIPQ) and "Improved Organizational Productivity Questionnaire" (IOPQ), were used as research instruments for data collection. Three experts validated the research instruments, two Business Education experts, and one Measurement and Evaluation expert. In order to establish reliability of the instruments, test retest method was adopted, scores obtained were correlated using Pearson's Product Moment Correlation Coefficient (PPMCC), and coefficient indexes of 0.87 and 0.79 were obtained. Findings from the study revealed robotics, machine learning and deep learning as artificial intelligence precepts positively relates with improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis. The study also discovered that there is a significant relationship between robotics, machine learning, and deep learning as precepts of artificial intelligence and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis. Based on the findings made, it was recommended that Business Education programme planners should revise the curriculum of the programme to incorporate AI-related topics such as robotics and emphasize the importance of data-driven decision-making. This will make courses on AI become integral to Business Education programme, thereby providing students with essential knowledge and skills needed to navigate the AI-driven business world.

Key words: Artificial Intelligence, Artificial Intelligence Precepts, Organizational Productivity, Small and Medium Scale Enterprises

INTRODUCTION

John McCarthy was one of the greatest innovators in the field of Artificial Intelligence. The word Artificial Intelligence was used the first time in the year 1956 by John McCarthy when he organized the Dartmouth conference which is considered the birth of AI as an academic field of study. His significant contribution to the field of AI and Computer Science as the "Father of Artificial Intelligence". AI was popularized during Open AI era of 2018, its roots stretch back to the 1920s. The history of AI is divided into many eras, starting from the groundwork in 1920 and the birth of AI in 1956 which created a base for what we have today (The Raffle, 2024). Interestingly, the construct: "Artificial Intelligence" (AI), in our contemporary milieu, now extends beyond some related fields of endeavour such as the field of computer science, conjoining all trades and professions.

Artificial Intelligence (AI) has emerged as a major force in today's world, revolutionizing various sectors and transforming how businesses function. As a consequence, educational institutions must also evolve in response to the rapid progress in AI to effectively prepare students for the ever-shifting landscape in the entrepreneurial world. Integrating AI into educational training institutions is essential for cultivating a comprehensive understanding of the technology's applications and consequences across diverse industries. This can be accomplished by incorporating AI modules into existing courses such as marketing, finance, and operations management or by establishing dedicated AI-focused courses. This type of curriculum will allow students to examine the ethical, legal, and societal aspects of AI, as well as its

practical uses (George, 2023).

Artificial intelligence can be defined as human performance and rationality of computers, systems or software. AI as a trend of educational technologies, which mainly applies to the realm of higher education, releases the burden of educators via automation and therefore saves time and human resources (Pedro, Subosa, Rivas & Valverde, 2019). Artificial intelligence is a technology that enables computers to stimulate human intelligence and problem-solving capabilities on their own or combine them with other technologies (The Raffle, 2024). Artificial intelligence (AI) is the capability of machines or computers to exhibit human-like intelligence. This involves a range of technologies that empower machines to perceive, reason, act, and learn similarly to humans. AI systems are designed to recognize and interpret their environment, make decisions, tackle complex challenges, learn from past data, and mimic behavioral patterns. These abilities enable them to perform tasks such as autonomously driving cars or using facial recognition for device security (Das, 2024).

Artificial intelligence is a machine's ability to perceive, synthesize, and infer information and then perform cognitive functions often associated with the human mind. Artificial intelligence is a type of technology that uses intelligent systems to perform tasks that typically require human intelligence. AI tech consists of four main components — learning, reasoning and decision making, problem solving, and perceptions (TechCrunch, 2024). AI awareness and application enhances entrepreneurial competencies and fosters creativity, benefiting businesses (Nuseir, Basheer & Aljumah, 2020). While AI offers real support in business scenarios for students, further conceptualization of AI's use in business is needed, covering critical aspects like processes, activities, and actors (Yang, Zhao, Du & Yang, 2022). Below, are the five primary branches or precepts of artificial intelligence (AI), each contributing uniquely to the development and capabilities of intelligent systems in the business world. See figure 1 below:

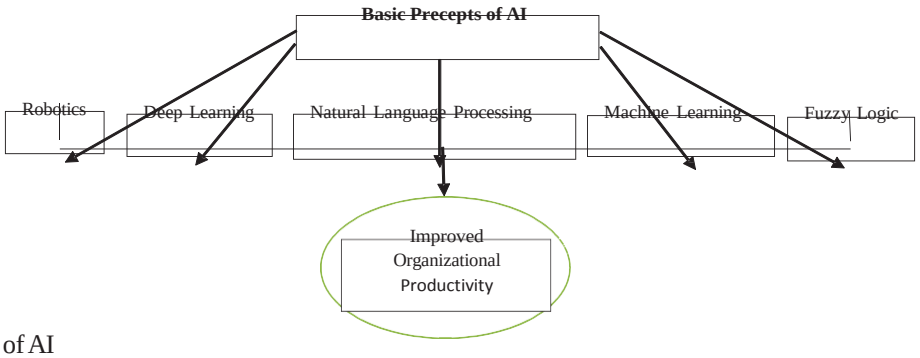


Figure 1: Precepts of AI

Source: Researcher's Conceptualization (2024)

However, this research will be predicated on the following precepts: machine learning, deep learning and robotics. Machine learning as the first precept identified in this study is especially useful for analyzing large volumes of data and finding patterns or trends that may be difficult for humans to detect. Machine learning is a subfield of computer science a branch of artificial intelligence that focuses on the development of algorithms and techniques that allow computers to learn and improve automatically through experience without being explicitly programmed for each specific task. The main goal of machine learning is to allow machines to acquire knowledge, recognize patterns and make predictions or decisions based on data (Conciliac, 2024). Machine Learning (ML) stands as a vital subset within AI, focusing on machines' capacity to learn autonomously from data and algorithms. Machine Learning leverages the foundational elements of AI to make decisions without explicit programming by humans, enhancing its adaptability and problem-solving capabilities. The positive impacts of machine learning to business organizations includes the following (Conciliac, 2024): improves efficiency and speed with machine learning; it enhances adoption and adaptability within the organization; it significantly reduces reliance on decisions based on intuition or assumptions and enables more accurate and objective decision making; automated tasks using machine learning are less subject to human error such as fatigue, inattention or bias which can improve the accuracy and quality of results and machine learning is

especially useful for analyzing large volumes of data and finding patterns or trends that may be difficult for humans to detect.

Followed closely to machine learning is deep learning and it is a method in artificial intelligence that teaches computers to process data in a way that is inspired by the human brain (Amazon, 2024). Deep learning makes it possible to move beyond the analysis of numerical data, by adding the analysis of images, speech and other complex data types. Deep learning brings about the following benefits on organizational productivity: deep learning algorithms possess the ability to automatically learn features from data, eliminating the need for manual feature engineering; it makes it easy for organizations to handle large and complex data; it leads to improved job performance among employees; it improves the handling of structured and unstructured data; deep learning serves as a potent tool for predictive modeling, enabling organizations to forecast feature events or trends and deep learning models demonstrates a strong ability to generalize to new situations or contexts (Cloud, 2024). Deep Learning (DL) operates as a subset of machine learning, utilizing artificial neural networks (ANNs) inspired by the human brain. DL excels at extracting intricate features from data, leading to superior performance compared to traditional machine learning. It minimizes human intervention further, although it requires substantial amounts of data. Common applications include natural language processing improvements in technologies like Amazon Alexa or Google Home.

The last but not the least precept as identified in this study is robotics. Robotics is a branch of engineering and computer science that involves the conception, design, manufacture and operation of robots. The objective of the robotics field is to create intelligent machines that can assist humans in a variety of ways. Robotics can take on a number of forms. A robot might resemble a human or be in the form of a robotic application, such as robotic process automation, which simulates how humans engage with software to perform repetitive, rules-based tasks (Kinza & Katie, 2023). Robotic, design, construction, and use of machines (robots) to perform tasks done traditionally by human beings. Robots are widely used in such industries as automobile manufacture to perform simple repetitive tasks, and in industries where work must be performed in environments hazardous to human (Moravee & Agassi, 2023). Robotics as a precept of artificial intelligence brings about the following benefits to business organizations: it promotes safety in the organization, leads to increased productivity, it makes for accurate delivery of work tasks, it is more flexible to operate within the organization and it is cost saving (Kinza & Katie, 2023). Robotics integrates AI to create and design autonomous or semi-autonomous robots and machines. This field often incorporates other AI technologies such as NLP and ML to enhance the capabilities of robots. AI-based robots are already making significant contributions to various industries, including healthcare, retail, and manufacturing, performing tasks with precision and efficiency.

Thus it is very imperative to note that the integration of artificial intelligence in the daily business operations of small and medium scale enterprises is critical to the improvement of organizational productivity especially in the areas of: quality, quantity, sales base and profit margin. The improvement of organizational productivity is predicated on the acceleration cost-effectiveness intrinsically and extrinsically. The meet up with the demand of organizational productivity, the entire value chain and all the variables should be included starting from the process of designing the product to the planning stage. This is consequent upon the fact that each individual area offers the potential to reduce unit costs on a sustainable basis by minimizing energy requirements, material input, personnel, processing time, production steps, among others. The drive for improved organizational productivity within every small and medium scale enterprises requires interdisciplinary expertise and proficiency which should range from machine, robotics, control and process technology through to IT-networked production planning with data exchanged across all levels (Akpomi & Ohaka, 2020).

Improved organizational productivity can be determined by two basic elements: judicious use of scarce resources and maximum productivity. Improved organizational productivity must include the objective use of scarce resources and exploitation of the full available potential. Organizational productivity has to

do with the use of economic resources to produce the minimum level of satisfaction possible with given input and technology. Achieving improved organizational productivity which is an integral element of production can be made realistic by adopting a precise approach when carrying out a business activity (Akpomi & Ohaka, 2020). According Otamiri (2024), organizational productivity is an economic or organizational construct that is measured by the quality of product produced by organization, the quantity of goods produced, sales or customer base and the overall profit margin of the organization. This implies that no organization can actually boost of improved organizational productivity if there is no complementary increase in the quality and quantity of goods being sold to the target audience within a given period of time. No doubt, in every small and medium scale enterprise, improved organizational productivity is usually facilitated through the application of artificial intelligence.

The influence of AI extends across multiple disciplines, necessitating cross-disciplinary collaboration (George, 2023). The swift progress of artificial intelligence (AI) has triggered a transformative influence on the business landscape, necessitating most educational institutions to adapt and confront the arising challenges and prospects. Through the application of AI in business enterprises, small and medium scale enterprises can develop the potential to either decrease the ratio of unemployment and at the same time, increase the amount of economic growth using innovative ideas/products/services/technologies (Roll & Wylie, 2016). There are two main contributions of AI to the improvement of organizational productivity of SMEs: automatic grading and employees' foreseen job performance in work environment (Chiu, Xia, Zhou, Chai & Cheng, 2023). The feedback provided to employees after the job performance assessment process is immediate and constructive, and instructors can support students in improving specific skills (Hopcan, Polat, Ozturk & Ozturk, 2022; Southworth, Miggliaccio, Glover, Glover, Reed, McCarty, Brendemuhl & Thomas, 2023). Cope, Kalantzis and Searsmith (2021) underline the role of AI in the assessment process, not in the conventional form, but especially related to tracking progress and providing “just-in-time feedback”.

In order to contain the challenges surrounding AI, collaboration among experts, policymakers, and the public, fostering transparent AI systems, ethical guidelines, education and awareness, and policies that encourage innovation while protecting society should be promoted (International Association of Business Analytics Certification, 2024). Business schools should promote students' engagement with peers from diverse fields, such as computer science, engineering, and social sciences, to encourage a well-rounded view of AI's applications and implications. George (2023) on his own part, articulated some clear cut strategies that can enhance the promotion and integration of AI in modern day business enterprise as follows:

1. Small and medium scale enterprise owners should invest in training and development programmes to equip employees with the necessary AI expertise and understanding of its potential applications in business processes. This will also help to address AI resistance by employees and ensure seamless integration of AI into business enterprises.
2. To facilitate AI integration in business enterprises, small and medium scale enterprise owners must invest in the required resources, including software, hardware, and relevant datasets. This means that developing partnership with other industry players will be vital in ensuring access to these resources and staying up to date with the latest AI advancements.
3. Small and medium scale enterprises needs to build strong networks with AI experts, researchers, and industry partners to stay informed about emerging trends and developments in AI. This will not only facilitate knowledge exchange but also create opportunities for collaborative research, internships, and increase in employability. By embracing these transformations, employees or prospective employees will be better positioned to prepare students for the AI-driven future, equipping them with the knowledge, skills, and ethical foundations needed to succeed and lead in the increasingly complex business landscape.

Some notable challenges that prevents the application of artificial intelligence in the daily operation of small and medium scale enterprises as follows (George, 2023): over-reliance on traditional business models, one-size-fits-all leadership style, over-reliance on hierarchical structures, emphasis on competition, static view of competitive advantage, lack of emphasis on sustainability, over-reliance on traditional business metrics, lack of emphasis on design thinking, outdated view of the discipline of marketing, outdated view of customer experience, outdated view of market research, outdated view of work-life balance, outdated view of technology, lack of emphasis on interdisciplinary skills, lack of emphasis on entrepreneurship, lack of focus on personal and professional development, lack of emphasis on diversity and inclusion, lack of emphasis on innovation, outdated view of project management, strict adherence to formal planning and budgeting processes, over-reliance on theory, outdated view of supply chain management and lack of emphasis on cyber security.

Statement of the Problem

Despite the recent surge in the development of AI-driven business enterprises and its applications, the progression of AI technology, from weak to strong, has yet to research a point where it can effectively replace the tasks performed by experienced, professional and skilled employees within the enterprise (Obschonka & Audretsch, 2020). Especially, business owners that fall under the category of small and medium scale enterprises rarely introduce operational technologies in their daily business operations (Chen et al., 2021). As the widespread integration of AI into business especially the sample and medium scale enterprises is apparent, there is a notable lag in the development of comprehensive theoretical and practical summaries to guide future owners of business organization and prospective employees. Concerned about this situation, the researchers carries out this study to inquire whether or not the application of artificial intelligence in business organization can lead to improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis.

Purpose of the Study

The purpose of the study was to examine the extent of relationship existing between artificial intelligence precepts and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis. Specifically, the study sought to:

1. Examine the extent of relationship existing between robotics as a precept of artificial intelligence and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis.
2. Examine the extent of relationship existing between machine learning as a precept of artificial intelligence and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis.
3. Examine the extent of relationship existing between Deep learning as a precept of artificial intelligence and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis.

   Research Questions

The following research questions were raised to guide the study:

1. What is the extent of relationship existing between robotics as a precept of artificial intelligence and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis?
2. What is the extent of relationship existing between machine learning as a precept of artificial intelligence and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis?
3. What is the extent of relationship existing between deep learning as a precept of artificial intelligence and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis?

Hypotheses

The following hypotheses were tested at 0.05 level of significance:

1. There is no significant relationship between robotics as a precept of artificial intelligence and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis.
2. There is no significant relationship between machine learning as a precept of artificial intelligence and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis.
3. There is no significant relationship between deep learning as a precept of artificial intelligence and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis.

Methodology

Correlation survey research design was adopted for the study. The population of the study comprised of 6,838 registered small and medium scale enterprise owners in Port Harcourt metropolis, Rivers State. The reason for choosing this population category to the exclusion of other population was based on the fact that these parts of the state is made up of the major business locations in the state. It is against this backdrop that the researcher considers the choice of the population to be appropriate and suitable for the research. The population was stratified in the following ways as shown in the table below:

Table 1: Population Distribution

S/N.	LGA	Medium Scale Enterprises	Small Scale Enterprises	Total SMEs
1.	Port Harcourt	1,324	841	2,165
2.	Obio-Akpor	2,201	1,133	3,334
3.	Eleme	619	270	889
4.	Oyigbo	210	240	450
	Sum Total			**6,838**

Source*:* Rivers State Yellow Page (2014)

The sample size of the study is 399 registered small and medium scale enterprises in Port Harcourt Metropolis. This figure was determined using Taro Yamane statistical formula. The researcher designed two research instruments titled: "Artificial Intelligence Precepts Questionnaire" (AIPQ) and "Organizational Productivity Questionnaire" (OPQ). The research instruments were developed into sections: Section A and B. Section A elicited demographic information of the respondents while section B was structured in a 4points Likert rating scale method of Very High Extent (VHE) = 4points, High Extent (ME) = 3points, Low Extent (LE) = 2points and Very Low Extent (VLE) = 1point. The research instruments were subjected to face and content validity by the researcher's supervisor and three other experts in the Faculty of Education, Rivers State Universities, to see whether the research instruments will measure what it was designed to measure. There comments and suggestions were included in the final draft of the research instruments. In order to establish reliability of the instruments, test retest method was adopted, scores obtained were correlated using Pearson's Product Moment Correlation Coefficient (PPMCC), and a coefficient indexes of 0.87 and 0.79 were obtained. A total of 399 copies of the questionnaire were administered to the respondents by the researcher and assisted by three trained research assistants. 383 copies were completely filled and retrieved by the researcher and the research assistants. Out of the 383 retrieved, 242 were from the medium scale enterprises while 141 were from small scale enterprises. The completed copies of the research instrument were coded to correspond to the weight assigned for each item. The collected data were analyzed using Pearson Product Moment Correlation (PPMC) to answer the research questions while z-ratio transformation associated with the correlation coefficients for each research question was used to test the corresponding hypotheses at 0.05 level of significance. The decision for the hypotheses was based on the z-value obtained and they are highlighted as follows: 0.00 – 0.19= Very Low Relationship; 0.20 – 0.44 = Low Relationship; 0.45 – 0.59 = Moderate/Average Relationship; 0.60 – 0.69 = High Relationship; 0.70 – 0.99 = Very High Relationship and 1= Perfect Relationship.

Results

Research Question 1: What is the extent of relationship existing between robotics as a precept of artificial intelligence and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis?

Table 2: Relationship Analysis between Robotics as a Precept of Artificial Intelligence and Improved Organizational Productivity of Small and Medium Scale Enterprises in Port Harcourt Metropolis

Variable	N	$\sum X$ $\sum Y$	$\sum X^2$ $\sum Y^2$	r_{cal}	Rmks
Robotics (X)	383	5747	100223		
				0.72	**Strong Positive Correlation**
IOP (Y)	383	5726	99074		

Source: Field Survey, (2024). *Keys: X- Robotics; Y- Improved Organizational Productivity (IOP)*

Table 2 presents the relationship analysis between robotics as a precept of artificial intelligence and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis. Based on the decision rule of correlation analysis, the r-value obtained 0.72, indicated that the relationship between robotics as a precept of artificial intelligence and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis. Therefore, the data gathered proved that the application of robotics in the daily operations of business enterprises can lead to improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis.

Research Question 2: What is the extent of relationship existing between machine learning as a precept of artificial intelligence and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis?

Table 3: Relationship Analysis between Machine Learning as a Precept of Artificial Intelligence and Improved Organizational Productivity of Small and Medium Scale Enterprises in Port Harcourt Metropolis

Variable	N	$\sum X$ $\sum Y$	$\sum X^2$ $\sum Y^2$	r_{cal}	Rmks
Machine Learning (X)	383	5623	96807		
				0.59	**Moderate Positive Correlation**
IOP (Y)	383	5723	99074		

Source: Field Survey, (2024). *Keys: X- Machine Learning; Y- Improved Organizational Productivity (IOP)*

Table 4 presented the summary of Pearson Product Moment Correlation Analysis on the relationship between deep learning as a precept of artificial intelligence and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis. The analysis revealed that the r-value obtained was 0.75, which implies that there is strong positive correlation between the two variables that were investigated. The implication of this finding is that deep learning as a significant precept of artificial intelligence cannot be deemphasized as long as the improvement of organizational productivity is concerned.

Hypotheses

H_{01}: There is no significant relationship between robotics as a precept of artificial intelligence and

improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis.

Table 5: z-Transformation Analysis on the Extent of Relationship Existing between Robotics as a Precept of Artificial Intelligence and Improved Organizational Productivity of Small and Medium Scale Enterprises in Port Harcourt Metropolis

Variable	N	∑X² ∑Y²	∑XY	Df	.	r_{cal}	z-cal	Zcrit	Rmks
R (X)	383	10543	27760						
			85359	381	0.05	0.72	12.94	1.98	Reject H_0
IOP (Y)	383	16502	42902						

Source: Research Data Output (2024). *Keys: Robotics s – (R); Improved Organizational Productivity (IOP)*

Table 5 shows the z-transformation analysis on the relationship between robotics as a precept of artificial intelligence and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis. The r-calculated value (0.72) was transformed to z-value using the z-transformation formula which resulted to 12.94. With degree of freedom 381 and 0.05 level of significance, the z-critical value obtained was 1.98 which is way less than the z-calc. The result implies that there is a significant relationship between robotics as a precept of artificial intelligence and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis.

H_{02}: There is no significant relationship between machine learning as a precept of artificial intelligence and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis.

Table 6: z-Transformation Analysis on the Extent of Relationship Existing between Machine Learning as a Precept of Artificial Intelligence and Improved Organizational Productivity of Small and Medium Scale Enterprises in Port Harcourt Metropolis

Variable	N	∑X² ∑Y²	∑XY	Df	.	r_{cal}	z-calc	Zcrit	Rmks
ML (X)	383	12058	32112						
			84474	381	0.05	0.59	12.94	1.98	Reject H_0
IOP (Y)	383	16502	42902						

Source: Research Data Output (2024). *Keys: Machine Learning – ML; Improved Organizational Productivity (IOP)*

Table 6 presents the z-transformation analysis on the relationship between machine learning as a precept of artificial intelligence and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis. The z-transformation yielded z-calculated value of 12.94. Comparing the z-cal (12.94) with z-crit value of 1.98 that was obtained through 379 degree of freedom and 0.05 level of significance, the null hypotheses is adjudged to be significant. Thus, the relationship between machine learning as a precept of artificial intelligence and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis.

Variable	N	∑X² ∑Y²	∑XY	Df	.	r_{cal}	z-calc	Zcrit	Rmks
DL (X)	383	13405	29007						
			85883	381	0.05	0.75	12.94	1.98	Reject H_0
IOP (Y)	383	16502	42902						

Source: Research Data Output (2024). *Keys: Deep Learning – DL; Improved Organizational Productivity (IOP)*

H_0: There is no significant relationship between deep learning as a precept of artificial intelligence and

improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis.
Table 7: z-Transformation Analysis on the Extent of Relationship between Deep Learning as a Precept of Artificial Intelligence and Improved Organizational Productivity of Small and Medium Scale Enterprises in Port Harcourt Metropolis

Table 7 presents the z-Transformation analysis on the relationship between deep learning as a precept of artificial intelligence and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis. From the table, it is seen that r-value (0.75) was transformed to z-calculated value of 12.94. Also, at 377 degrees of freedom and 0.05 level of significance, the z- critical value was 1.98 which is less than the obtained z-calculated value (12.94). Hence, the null hypothesis was rejected. This implies that there is significant relationship between deep learning as a precept of artificial intelligence and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis.

Discussion of Findings

Robotics and Improved Organizational Productivity

The result in Table 2 above showed the extent of relationship existing between robotics as a precept of artificial intelligence and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis. The findings showed that the use of robotics helps to reduce company operational cost to the barest minimum, it helps to engender effectiveness and efficiency within the organization, productive capacity of most corporate organizations are enhanced through the use of robots, robotics in organizations enhances critical thinking for effective decision making process and it provides a more reliable technological means on how business organizations can solve problems. The findings of the tested hypotheses also showed that there is a significant relationship between robotics and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis. The finding made in this study is similar to that of Kinza and Katie (2023) who reported that the objective of the robotics field is to create intelligent machines that can assist humans in a variety of ways. A robot might resemble a human or be in the form of a robotic application, such as robotic process automation, which simulates how humans engage with software to perform repetitive, rules-based tasks. Kinza and Katie (2023) in their report which is also in consonance with the findings this study noted that robotics as a precept of artificial intelligence brings about the following benefits to business organizations: it promotes safety in the organization, leads to increased productivity, it makes for accurate delivery of work tasks, it is more flexible to operate within the organization and it is cost saving. The implication of this is that most business organizations will find it relatively difficult to cut operational cost in the daily operations of the business organization if they do not pay attention to the positive effect of robotics.

Machine Learning and Improved Organizational Productivity

The result in Table 3 above showed the extent of relationship existing between machine learning as a precept of artificial intelligence and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis. The findings showed that machine learning significantly reduces reliance on decisions based on intuition, improves efficiency and speed with machine learning, enables more accurate and objective decision making, it is especially useful for analyzing large volumes of data that may be difficult for humans to do. The findings of the tested hypotheses also showed that there is a significant relationship machine learning as a precept of artificial intelligence and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis. The findings of this study is in consonance with the work of Conciliac (2024) who reported that machine learning improves efficiency and speed with machine learning; it enhances adoption and adaptability within the organization; it significantly reduces reliance on decisions based on intuition or assumptions and enables more accurate and objective decision making; automated tasks using machine learning are

less subject to human error such as fatigue, inattention or bias which can improve the accuracy and quality of results and machine learning is especially useful for analyzing large volumes of data and finding patterns or trends that may be difficult for humans to detect. The implication of this finding is that since machine learning makes it easy for small and medium scale enterprises to learn about and be more exposed to the use of artificial intelligence, it is essential for organizations to think in that direction.

Deep Learning and Improved Organizational Productivity

The result in Table 4 above showed the extent of relationship existing between deep learning as a precept of artificial intelligence and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis. The findings of the study showed that deep learning as a precept of artificial intelligence makes for the barest reduction of human efforts while carrying out given organizational task, it makes it easy for organizations to handle large and complex data, it leads to increased job performance, it improves the ability of organizations to handle structured and unstructured data, it makes is easy for organizations to be able to forecast feature event or trends. The findings of the tested hypotheses also showed that there is a significant relationship between deep learning as a precept of artificial intelligence and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis. This work is similar to that of Amazon (2024) who stated that deep learning is a method in artificial intelligence that teaches business organizations how to make use of computers to process data in a way that is inspired by the human brain. The findings of this study also relates with that of Cloud (2024) who reported as follows: deep learning makes it possible to move beyond the analysis of numerical data, by adding the analysis of images, speech and other complex data types. Cloud also discovered that: deep learning brings about the following benefits on organizational productivity: eliminating the need for manual feature engineering; it makes it easy for organizations to handle large and complex data; it leads to improved job performance among employees; it improves the handling of structured and unstructured data; deep learning serves as a potent tool for predictive modeling, enabling organizations to forecast feature events or trends and deep learning models demonstrates a strong ability to generalize to new situations or contexts. The implication of this finding is that deep learning provides most business organizations with enhanced technological capability to solve organizational problem and improve productivity.

Conclusion

Based on the findings of the study, the researchers concluded that robotics as a precept of artificial intelligence relates with improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis to a high extent. The researchers also concluded that machine learning as a precept of artificial intelligence relates with improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis to a high extent. The researchers also concluded that deep learning as a precept of artificial intelligence relate to improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis to a high extent. On the other hand, the researchers concluded that there is a significant relationship between robotics, machine learning and deep learning and improved organizational productivity of small and medium scale enterprises in Port Harcourt metropolis.

Recommendations

Based on the findings of the study, the following were recommended:

1. Business Education programme planners should revise the curriculum of the programme to incorporate AI-related topics such as robotics and emphasize the importance of data-driven decision-making. This will make courses on AI become integral to Business Education programme, thereby providing students with essential knowledge and skills needed to navigate the AI-driven business world.
2. There should be the integration of AI-powered learning tools such as machine learning, personalized learning platforms, virtual assistance, and adaptive assessment systems, will revolutionize teaching methods. These tools will enable instructors to tailor the learning process to individual student's needs, providing targeted support and guidance to enhance learning outcomes.
3. Business Education programme administrators should adopt project-based learning approaches, often in collaboration with industry partners, to offer students' real-world, hands-on experiences. These projects will allow students to apply their AI knowledge and skills such as deep learning to real business challenges, fostering problem-solving and critical-thinking abilities.

REFERENCES

Akpomi, M. E., & Ohaka, N. C. (2020). Business education students' perception of the influence of technology on production efficiency of entrepreneurs in Rivers State. *Niegrian Journal of Business Education, 7*(1), 288-302.

Asakura, K., Occhiuto, K., Todd, S., Leithead, C., & Clapperton, R. (2020). A call to action on artificial intelligence and social work education: Lessons learned from a simulation project using natural language processing. *Journal of Teaching in Social Work*, *40*(5), 501-518.

Chen, L., Ifenthaler, D., & Yau, J. Y. K. (2021). Online and blended entrepreneurship education: A systematic review of applied educational technologies. *Entrepreneurship Education, 4*(2), 191-232.

Cloud, V. N. G. (2024). Advantages and Disadvantages of Deep Learning. www.vngcloud.vn.com Accessed on June 20th, 2024.

Conciliac, E. D. M. (2024). 6 Advantages of Machine Learning in Data Management. www.conciliac.com Accessed on June 20th, 2024.

George, B. (2023). Artificial intelligence and business education: Contemporary challenges and futuristic solutions. www.highereducationdigest.com on June 12th, 2024.

Kinza, Y., & Katie, T. H. (2023). A guide to artificial intelligence in the enterprise science. www.techtarget.com. Accessed June 20th, 2024.

Maritz, A. (2017). Illuminating the black box of entrepreneurship education programmes: Part 2. *Education and Training, 59*(5), 471-482.

Moravee, H., & Agassi, S. (2023). Robotics technology. www.britannica.com. Accessed on June 20th, 2024.

Pedro, F., Subosa, M., Rivas, A., & Valverde, P. (2019). Artificial intelligence in education: Challenges and opportunities for sustainable development. The United Nations Educational, Scientific and Cultural Organization (UNESCO), Paris.

Obschonka, M., & Audretsch, D. B. (2020). Artificial intelligence and big data in entrepreneurship: A new era has begun. *Small Business Economics, 55*(3), 529-539.

Otache, I., Umar, K., Audu, Y., & Onalo, U. (2021). The effects of entrepreneurship education on students'

entrepreneurial intentions: A longitudinal approach. *Education and Training, 63*(7/8), 967-991.

Roll, I., & Wylie, R. (2016). Evolution and revolution in artificial intelligence in education. *International Journal of Artificial Intelligence in Education, 26*(2), 582-599.

Shepherd, D. A., & Majchrzak, A. (2022). Machines augmenting entrepreneurs: opportunities (and threats) at the nexus of artificial intelligence and entrepreneurship. *Journal of Business Venturing, 37*(4), 106227.

The Raffle (2024). Who is the Father of AI? Retrieved from www.raffle.ai/newsroom.com on June 12th, 2024.

Yang, D., Zhao, W., Du, J., & Yang, Y. (2022). Approaching Artificial Intelligence in business and economics research: a bibliometric panorama (1966–2020). *Technology Analysis and Strategic Management*, *5*, 1-16.

IMPACT OF TECHNOLOGY ON ENTREPRENEURIAL SKILLS DEVELOPMENT OF WOMEN IN ETCHE LOCAL GOVERNMENT AREA OF RIVERS STATE.

Nnodim Kingdom Alabeke
Department of Technology Entrepreneurship,
Rivers State University, Port Harcourt.

Okagwa, Promise Omuruka
Department of Vocational and Technology Education
Rivers State University, Port Harcourt
kingdomnnodim@gmail.com

ABSTRACT

The study examines the impact of Technology on Entrepreneurial Skills Development of Women in Etche Local Government Area of Rivers State. Three objectives, three research questions. The study adopted descriptive survey research design. The population of the study comprised of one hundred and seventy one thousand, six hundred and five women (171,605) women in Etche local Government Area of Rivers State. The sample size was 396 women, sampled from the population using, multi-stage sampling techniques. Data were collected using a self-structured questionnaire *designed in 4 point rating scale. The instrument was face and content validated by experts in the Department of Vocational and Technology Education, Rivers State University. The research questions were analyzed using mean and standard deviation. The study revealed that entrepreneurial skills development of women improve the level of customize information through technology, That the level of skills developed by women improves their decision making and That there level of entrepreneurial incorporate technology and manual practices in Etche Local Government Area of Rivers State. Based on the findings, the study recommended that women in Etche Local Government Area mostly those in Rural Areas should be provided with needed technology to enhance leadership skills among women in Etche Local Government Area of Rivers State.*

Keywords: *Technology, Entrepreneurial Skills, Women*

INTRODUCTION

Technology is the application of knowledge for achieving practical goals in a reproducible way. The word *technology* can also mean the products resulting from which efforts? including both tangible tools such as utensils or machines, and intangible ones such as software. Technology plays a critical role in science, engineering, and everyday life (*Schiffer, M. B. 2013).*

Technological advancements have led to significant changes in society. The earliest known technology is the stone tool, used during prehistoric times, followed by the control of fire, which contributed to the growth of the human brain and the development of language during the Ice Age (Parker, 2000). The invention of the wheel in the Bronze Age allowed greater travel and the creation of more complex machines. More recent technological inventions, including the printing press, telephone, and the Internet, have lowered barriers to communication and ushered in the knowledge economy (Ghobakhloo 2011).

Technology contributes to economic development and improves human prosperity, it can also have negative impacts like pollution and resource depletion, and can cause social harms like technological unemployment resulting from automation. As a result, there are ongoing philosophical and political debates about the role and use of technology, the ethics of technology, and ways to mitigate its downsides *(Minogue, 2010).*

Nnodim and Amadi (2017) affirmed that Entrepreneurial means two things-managerial skills and entrepreneurial attitudes. However, while accepting that entrepreneurs need managerial skills, entrepreneurship is more of having the ability to create new business, perceive opportunities, and

develop new ideas in viable venture and gathering resources to set the business running. The underlying process are thinking, reasoning and acting, while looking out for more opportunities. Great entrepreneurs do not consider the opinion and fears raised by people at the on-set, but concentrate on how to meet the targets. They are resourceful, highly motivated and driven by the quest for success and the enhancement of their entrepreneurial skills.

Women's economic empowerment is a cornerstone of the 2030 Agenda for Sustainable Development. The 2016 Report of the United Nations Secretary-General's High-Level Panel on Women's Economic Empowerment provides strong evidence that women are lagging behind men in terms of the number of female business owners, the size of women-owned businesses, and their access to economic resources. Specifically, women-owned enterprises are smaller and disadvantaged in their access to credit, resources, and assets (UN Secretary-General's High-Level Panel on Women's Economic Empowerment 2016, 2). With data on the existing gender gap in female entrepreneurship sparse, tracking the progress achieved by women in this area becomes more important. Increasing the rate of new business creation by women is essential to stimulate innovation and employment in our economies. According to Ashcraft's (2016) study, two primary challenges have resulted in the lack of women in leadership positions in the technology industry. The reasons are societal influences and biases, and workplace systems. According to Madsen, (2012), there is a manufactured perception that women are not suitable for technology-based roles assuming that they will not be able to bring anything to the company if they were in leadership positions. This has resulted in the poor statistics of women in technology roles; technology workplaces carry the same biases that have existed traditionally. Madsen's article highlights the issue's overall problem, purpose, the approach used, and its relevance to human resource development (HRD) and practice (Madsen, 2012).

Women entrepreneurs constitute a growing share of SME owners, with higher than average start-up rates in several member and non-member economies of the Organization for Economic Co-operation and Development (OECD). In an era of global economic integration, this significant economic and social development is of growing interest to policy makers worldwide (Weeks, 2002). Women entrepreneurship is developing in the Organization for Economic Co-operation and Development member countries and around the world. In some countries, women-owned businesses are increasing at a very rapid pace in terms of both numbers and turnover.

Women entrepreneur are seen as a group of women who initiate, operate and organize a business enterprise. Enterprises set up by women should be provided with incentives and support on the basis of their ownership and management characteristics and not linked with employment of women.

Though, Ogbonna (2018), describe women as the “adult female human beings”, and further stated that right from creation, woman is acknowledged as a companion to a man. In line with the above assertion, Ikimalo (2013), acknowledged that men have ruled the world and missed the opportunity to use the numerical strength and complimentary role of women to enhance sustainable community development.

Statement of the problem

The technology industry is known as a male-dominant environment, and the lack of women in leadership positions is a recurring issue. According to previous studies, women tend to face difference barriers and challenges to advance their careers in the technology industry Aydalot, and Keeble, 2018). There is an extreme nee to explore the challenges of in e gratin women in leadership positions in the technology industry; for this reason, several methods should be employed to combat this problem. An action must be taken; technology companies should adopt strategies to explore and analyse the challenges that are in interfering in women's prospects in the technology industry. It is based on these issues raised that prompted the study Impact of Technology on Entrepreneurial Skills Development of Women in Etche Local Government Area of Rivers State.

Purpose of the Study

The study examines the impact of Technology on Entrepreneurial Skills Development of Women in Etche Local Government Area of Rivers State. Specifically, the study sought to:

1. Examine the impact of technology on leadership skills of women in Etche local Government area of Rivers State
2. Determine the impact of technology on managerial skills of women in Etche local Government area of Rivers State
3. Examine the impact of technology on critical thinking skills of women in Etche local Government area of Rivers State

Research Questions

1. What are the impact of technology on leadership skills of women in Etche local Government area of Rivers State?
2. What are the impact of technology on managerial skills of women in Etche local Government area of Rivers State?
3. What are the impact of technology on critical thinking skills of women in Etche local Government area of Rivers State?

Methodology

The research design used for this study was descriptive survey design. The study was carried out in Etche area which is made up of Etche Local Government Areas with the headquarter situated at Okehi respectively. The population of the study consisted of all adult female from the five clans of Etche Local Government Area. A total of one hundred and seventy one thousand, six hundred and five women (171,605) were recorded by National Bureau of Statistics (2012) as the total number of women in Etche Area of Rivers State. The sample size was 340 women entrepreneurs. Firstly, Etche was clustered into five traditional clans of Igbo, Okehi, Ulakwo/Umuselem, Ozuzu, and Mba respectively. Secondly, three communities were randomly sampled from each clan given a total of fifteen communities. Thirdly, twenty-two respondents were randomly selected from each community, giving a total sample size of 340 used for the study. The instrument for data collection was a self-structured questionnaire design after a modified four-point rating scale. Mean and Standard Deviation were used to analyze data in relation to research questions. For the research questions, criterion mean of 2.50 was used for decision such that item with mean value of 2.50 and above was taken as "Agree" while item with mean value less than 2.50 was considered as "Disagree". Standard deviation value close or wide apart was used to determine the homogeneity or heterogeneity in opinion among the respondents.

Results

The results of the study were presented in Table 1-3 as shown below.

Research Question 1: What are the impacts of technology on leadership skills of women in Etche local Government area of Rivers State?

Table 1: Mean Response on impact of technology on leadership skills of women

S/N	Item Statement	Women = 340		
		$\overline{X}$	SD	RMK
1	Finding and receiving customized information.	3.07	0.73	A
2	Getting interactive communication assessment tools	3.78	1.04	A
3	Delegation of responsibility	2.80	0.60	A
4	Desire to learn	3.99	0.73	A
5	Self-awareness	2.69	1.01	A
6	Improving their decision making	3.32	0.62	A
7	Have Confidence	3.09	0.51	A

8	Have positive mindset	3.54	0.82	A
9	Provide more mentorship opportunities for women at every level	3.90	0.60	A
10	Ensure positive atmosphere	3.12	1.03	A
11	Be very creative	3.13	0.82	A
12	Have communication skills	3.07	0.77	A
	Average Mean/SD	**3.29**	**0.77**	**A**

Source: *Researcher's Field Result; 2024*

From table 1 on the impact of technology on leadership skills of women in Etche local Government area of Rivers State , item 1 to item 12 shows that the calculated mean 3.07, 3.78, 2.80, 3.99, 2.69, 3.32, 3.09, 3.54, 3.90, 3.12, 3.13, 3.07and standard deviation of 0.73, 1.04, 0.60, 0.73 , 1.01, 0.62, 0.51, 0.82, 0.60, 1.03, 0.82, 0.77 which agrees that entrepreneurial skills development of women in Etche Local Government Area of Rivers State will help in technology development respectively.

Research Question 2: What are the impact of technology on managerial skills of women in Etche local Government area of Rivers State?

Table 2: Mean Response on impact of technology on managerial skills of women

S/N	Item Statement	Women = 396		
		$\overline{X}$	SD	RMK
13	Ensure conducive environment	3.04	0.50	A
14	Improve communication among women	3.13	0.77	A
15	Improve their time management	2.65	0.86	A
16	Using leadership a ssessment to gauge their skills	3.61	0.92	A
17	Improving their self-awareness	3.06	0.66	A
18	Have a good listening skills	3.56	0.59	A
19	Ability to have a strategic mindset	2.04	0.73	A
20	Ensure they motivate others	2.79	0.81	A
21	Ensure Emotional stability	3.21	0.61	A
22	Ensure Accountability	2.67	1.05	A
	Average Mean/SD	**3.07**	**0.75**	**A**

Source: *Researcher's Field Result; 2024*

In response to research question 2, Table 2 above on the impact of technology on managerial skills of women in Etche local Government area of Rivers State, item 13 showed that respondents agreed with a calculated mean of 3.04 with standard deviation of 0.50, Ensure conducive environment. Item 14 shows that the calculated mean of 3.13 with standard deviation of 0.77 this indicates that the respondents agreed that improve communication among women. Item 15 agrees that improve their time management, this is because it has a calculated mean of 2.65with standard deviation of 0.86. Item 16 shows that the calculated mean of 3.61with standard deviation of 920, indicating that the respondents agreed that using leadership assessment to gauge their skills. Item 17 with a calculated mean of 3.06 with standard deviation of 0.66 agreed that improving their self-awareness. Item 18 with a calculated mean of 3.56 with standard deviation of 0.59 agreed that Have a good listening skills. Item 19 with a calculated mean of 2.04 with standard deviation of 0.73 agreed that Ability to have a strategic mindset. Item 20 with a calculated mean of 2.79 with standard deviation of 0.81agreed that Ensure they motivate others. Item 21 with a calculated mean of 3.21with standard deviation of 0.61agreed that Ensure Emotional stability and item 22 with a calculated mean of 2.67 with standard deviation of 1.05agreed that ensure accountability respectively.

Research Question 3: What are the impacts of technology on critical thinking skills of women in Etche local Government area of Rivers State?

Table 3: Mean Response on impact of technology on critical thinking skills of women

S/N	Item Statement	Women = 396		
		$\overline{X}$	SD	RMK
23	Ability to utilize evaluation of skills for management of technology	2.94	1.09	A
24	Ability to identifying various problems	2.95	0.92	A
25	Ability to identifying multiple assumptions	3.27	0.82	A
26	Ability to understanding both induction deduction skills	2.97	0.92	A
27	Avoiding thinking based on self, hopes and desires	2.95	1.00	A
28	Ability to focusing on problems and questions	2.95	0.88	A
	Average Mean/SD	**3.29**	**0.77**	**A**

Source: *Researcher's Field Result; 2024*

In response to research question 3, table 3 above on the impact of technology on critical thinking skills of women in Etche local Government area of Rivers State, item 23 shows that a calculated mean of 2.94 with standard deviation of 1.09. This indicates that the ability to utilize evaluation skills for management of technology. Item 24 shows that the calculated mean of 2.95 with standard deviation of 0.92, indicating that the respondents agreed that ability to identifying various problems. Item 25 agreed that ability to identifying multiple assumptions with a calculated mean of 3.27 with standard deviation of 0.82. Item 26 shows a calculated mean of 2.97 with standard deviation of 0.92, indicating that the respondents agreed that ability to understanding both induction deduction skills. Item 27 showed a calculated mean of 2.95 with standard deviation of 1.00, which is an indication that Avoiding thinking based on self, hopes and desires, and item 28 showed a calculated mean of 2.95 with standard deviation of 0.88, which is an indication that the Ability to focusing on problems and questions.

Findings of the Study

The following are the findings of the study:

1. That entrepreneurial skills development of women improve the level of customize information through technology.
2. That the level of skills developed by women improves their decision making.
3. That there level of entrepreneurial incorporate technology and manual practices
4. That entrepreneurial skills development of women Improve their self-awareness.
5. That the level of entrepreneurial skills utilizes interpretation for management of technology.

Discussion of Findings

Discussions of the study were made according to the research questions posed in the study.

Impact of Technology on Leadership Skills of Women

The findings in research question I revealed that finding and receiving customized information, Getting interactive communication assessment tools, delegation of responsibility, **desire to learn,** Self-awareness, improving their decision making, have confidence, have positive mindset, provide more mentorship opportunities for women at every level, ensure positive atmosphere among others **in Etche Local Government Area of Rivers State.** The study corroborated with the views of *Minogue (2010)* Technology contributes to economic development and improves human prosperity, it can also have negative impacts like pollution and resource depletion, and can cause social harms like technological unemployment resulting from automation. As a result, there are ongoing philosophical and political debates about the role and use of technology, the ethics of technology, and ways to mitigate its downsides.

Impact of Technology on Managerial Skills of Women

Findings from research question 2 revealed that ensure conducive environment, improve communication among women, improve their time management, using leadership assessment to gauge their skills, Improving their self-awareness, have a good listening skills, ability to have a strategic mindset among others on impact of technology on managerial skills of women in Etche local Government area of Rivers State. These study share the same view with Eaglya and Carli (2003) that women have advantages in typical managerial styles, and it is very important to explore those advantages to integrate more women in leadership positions in the technology industry. In agreement with Kodama and Takao (2017) assert that more clarification of the benefits of having women in leadership positions was needed. Powel and Chang (2016), explained in detail the benefits, stating the need for economic opportunities for women and their families as well as the benefit for the technology industry.

Impact of Technology on Critical Thinking Skills of Women

The findings from research question 3 revealed that ability to utilize evaluation of skills for management of technology, ability to identifying various problems, ability to identifying multiple assumptions, ability to understanding both induction deduction skills, avoiding thinking based on self, hopes and desires and ability to focusing on problems and questions for impact of technology on critical thinking skills of women in Etche local Government area of Rivers State. The findings is in agreement with Coºar (2013) who"s in another example, it was found that computer programming training provided to seventh grade students positively affected their critical thinking skills. Furthermore, it has been stated that there is no gender difference in the critical thinking skills for technological advancement.

Conclusion

The study has shown that women in Etche possessed and Provide more mentorship opportunities at every level, making the gender inequality visible and incorporate technology and manual practices on impact of Technology on Entrepreneurial Skills Development of Women in Etche Local Government Area of Rivers State. It also concluded that communication among women improved, Ensure flexibility among

women and among others on impact of Technology on Entrepreneurial Skills Development of Women in Etche Local Government Area of Rivers State.

Recommendations

The following recommendations were made:

1. That women in Etche Local Government Area mostly those in Rural Areas should be provided with needed technology to enhance leadership skills among women in Etche.
2. Government should organize symposium, seminar and workshop through women organization based units to enhance their managerial skills level.
3. That government should improve and take additional courses that requires critical thinking analysis to solve problems of rural women in Etche Local Government Area.

REFERENCES

Ahl, H. (2006). A Foucauldian framework for discourse analysis. In Neergard, H., and Ulhoj, J.P., (Eds.), *Handbook of qualitative research methods in entrepreneurship*. Camberley: Edward Elgar

Aktay, S. (2011). *Ýlköðretimde web tabanlý portfolyo (webfolyo) uygulamasý.* (Unpublished doctoral dissertation). Anadolu University, Eskiºehir, Turkey.

Crump, Thomas (2001). A Brief History of Science. Constable & Robinson publication. p. 9. ISBN 978-1841192352.

Correl, S. and Mackenzie, L. (20). *To Succeed in Tech, Women Need More Visibility*. [online] Harvard Business Review. Available at: https://hbr.org/2016/09/to-succeed-in-tech-women-need-more-visibility [Accessed 14 May 2019].

Coºar, M. (2013). *Problem temelli öðrenme ortamýnda bilgisayar programlama çalýþmalarýnýn akademik baþarý, eleþtirel düþünme eðilimi ve bilgisayara yönelik tutuma etkileri.* (Unpublished doctoral dissertation). Gazi University, Ankara, TR.

Carpenter, L. A. (2014). Functional literacy for self-empowerment: Perspectives and issues. *International Journal of Educational Issues.* 1(1) 26-39.

Ghobakhloo, M., Benitez-Amado, J. & Arias-Aranda, D (2011) Reasons for information technology adoption and sophistication within manufacturing SMEs. *POMS 22nd Annual Conference: Operations management:* The enabling link Reno, Nevada, U.S.A. April 29 to May 2, 2011.

Holtzblatt, K. and Marsden, N. (2018). Designathon to Support Women in Tech. *Extended Abstracts of the 2018 CHI Conference on Human Factors in Computing Systems*

Harrison, R.T., Leitch, C.M. and McAdam, M., 2012. Breaking glass: Towards a gendered analysis of entrepreneurial leadership. In *Research Handbook on Entrepreneurship and Leadership*. Edward Elgar Publishing.

Harrison, K. A. (2012). *Preventing Maternal Death in Nigeria: Looking Back and Looking Forward.* Professor Olikoye Ransome-Kuti, Memorial Lecture Series (7).

Hardey, M., 2019. Women's leadership and gendered experiences in tech cities. *An International Journal,* 34(3), pp. 188-199.

Ikimalo.J. (2013). Gender and Womens Health for Sustainable Development.*Journal of Gender & Women Development.* 1, (2), 41-56.

Klenke, K., 2016. *Qualitative research in the study of leadership*. Emerald Group Publishing Limited.

Kato, T. and Kodama, N. (2017). The Effect of Corporate Social Responsibility on Gender Diversity in the Workplace: Econometric Evidence from Japan. *British Journal of Industrial Relations*, 56(1), pp.99-127.

Lewellyn, K.B. and Muller-Kahle, M.I. (2019). The Corporate Board Glass Ceiling: The Role of Empowerment and Culture in Shaping Board Gender

Minogue, K. (2010). Stone Age Toolmakers Surprisingly Sophisticated. science.org. Archived from the original on 10 September 2022. Retrieved 10 September 2022.

Madsen, S.R., 2012. Women and leadership in higher education: Current realities, challenges, and future directions. *Advances in Developing Human Resources*, *14*(2), pp.131-139.

Mohsen Tavakol & Reg Dennick (2011). Making Sense of Cronbach?s Alpha. *International Journal of Medical Education. 2:53-55 Editorial.*

Nnodim A.U. and Amadi, N. S (2017). Strategies for Developing Entrepreneurship skills of Rural Women in Etche Area of Rivers State. *International Journal of Innovative Development & Policy Studies 5(4):1-6.*

Ogbonna, F.C. (2018). *Women Empowerment and Community Development:* A Study of Etche Local Government Area. An Unpblished Project Work of College of Health Science and Technology, Rivers State.

Owlett, J. A. J.; Wrangham, R. W. (2013). Earliest fire in Africa: towards the convergence of archaeological evidence and the cooking hypothesis. Azania: Archaeological Research in Africa. ***48*** *(1): 5–30.*

Powell, C. and Chang, A.M., 2016. Women in tech as a driver for growth in emerging economies. *Council on Foreign Relations*. Available at: https://www.cfr.org/report/women-tech-driver-growth-emerging-economies [Accessed 6 May 2019].

UN Secretary-General's High-Level Panel on Women's Economic Empowerment. 2016. "*Leave No One Behind: Taking Action for Transformational Change on Women's Economic Empowerment."* http://hlpwee.

Schiffer, M. B. (2013). The Archaeology of Science: Studying the Creation of Useful Knowledge. Manuals in Archaeological Method, Theory and Technique. Heidelberg: Springer International Publishing. (9). 185–198. Archived from the original on 4 October 2022. Retrieved 11 September 2022.

Greekline JOURNAL OF COMMUNICATION AND ADVANCE TECHNOLOGY

Greekline PUBLICATIONS AND ACADEMIC JOURNALS
ISSN: 279393X

INNOVATIONS IN OFFICE TECHNOLOGY AND MANAGEMENT PROGRAMME: 21ST CENTURY SKILLS

Dr. Sunday Ebhodaghe AKASI
aksunebo@yahoo.co.uk
08033802347
Office Technology and Management Department
Federal Polytechnic, Ede, Osun State

ABSTRACT

Innovation has been highlighted as one of the most important skills for the twenty-first century; particularly when we take into account how these abilities can help people realize their full potential by encouraging positive attributes in them. These skills have been highly valued in a variety of circumstances. The interest in the study of creativity can be explained by the urge to comprehend human potential and characteristics linked to positive qualities of the individual. People have lauded this quality for its role in enhancing personal happiness, in achieving both personal and professional goals, and for the tremendous contributions it may bring to humanity. This essay emphasizes innovation in the Office Technology and Management curriculum and argues that it is crucial in the twenty-first century. The foundation of the Office Technology and Management curriculum is creativity and innovation. Accordingly, creativity is a result of knowledge, curiosity, imagination, and evaluation. The more concepts, patterns, and combinations that may be achieved, which ultimately lead to the creation of new and creative goods and services, the bigger the knowledge base and level of interest. It examines some current inventions and innovations of teaching and learning tools for the discipline of office technology and management. Laptops, computers, the internet, CD ROMs, audio cassette tapes, multi-media projectors, video conferencing, and power point are just a few of these technologies and innovations. The article concluded by recommending that Office Technology and Management department utilize these resources efficiently, as doing so would allow the grandaunts to work for themselves and create jobs rather than looking for them.

Keywords: Innovation; Creativity, Office Technology Management

INTRODUCTION

It has been stressed that innovation in Office Technology and Management are essential abilities for the twenty-first century, especially when we take into account the fact that these talents can help people fulfill their full potential by invoking positive features in them. These characteristics have been highly regarded in many contexts. The analysis and emphasis on the significance of the constructs to the Office Technology and Management program as a discipline, as well as the connections between them in the scientific literature, are the goals of this article. The interest in the study of creativity can be explained by the urge to better understand human potential and characteristics associated to positive qualities of the individual (Kaufman & Beghetto, 2019). This quality has received recognition for its important contributions to humanity, its role in enhancing personal well-being, and its success in both personal and professional endeavors. For these reasons, innovation and creativity are increasingly being acknowledged as valuable tools for both individual and societal development.

Innovation

Innovation is seen as an important personal quality in today's global society. This phenomenon has been studied in many different disciplines, including administration, education, economics, psychology, and sociology, to mention a few. Innovation as a concept has been characterized as the creation of a product or a practice of new and beneficial ideas to benefit individuals, teams, businesses, or a wider range of society (Bledow, Frese, Anderson, Erez, & Farr 2019). The introduction, implementation or development of a novel idea, item, or service for the benefit of society is always referred to as innovation. According to its amplitude, the Organization for Economic Cooperation and Development (2016) categorized various types of innovation as follows:

a) The utilization of an idea or service that has undergone significant development is referred to as a "product innovation," and its viability may be determined by its functionality or other methods that allow

for new applications for that concept or service;
b) Process innovation, which refers to the development of new methods to achieve a given production; and
c) Organization innovation, which refers to the development of new types of organization.
The social impact of each of these terms is used to distinguish between product and process innovation. While product innovation has a direct impact on the economy and job creation, process innovation must be evaluated in terms of its capacity to reduce costs, reduce the time necessary to accomplish a specific activity, or significantly improve the effectiveness of providing a service (Mello, 2019). Innovation is the transformation or implementation of an idea into something of commercial value or that many people can utilize. As a result, innovation is frequently seen as having an economic or societal impact that may or may not be connected to a technological breakthrough (Cabral, 2017). There is a growing trend among nations concerned with innovation to approach this issue using a systematic strategy to tackle intricate issues rather than aiming to solve a single problem or situation because this transformation involves many elements.

Creativity

The concept of creativity has several facets, including cognitive variables, personality traits, family, educational, social, and cultural elements. Depending on one's thinking and creative tendencies, these dimensions interact with one another and are thus expressed and discovered in a number of ways. The creative phenomenon has thus been studied from a variety of angles, with some emphasizing the individual, others emphasizing the process or products, the environment, or even the interaction between two or more of these variables. This suggests that creativity can be identified in a variety of ways (Oliver, 2012).
Both cognitive and personality characteristics are examined in the study of the creative person. Divergent thinking abilities are mostly related to the cognitive components of creative thinking. Some of the positive personality traits linked to creativity include curiosity, tolerance for other viewpoints, autonomy, imagination, self-confidence, persistence, motivation, and others (Almeida & Wechsler, 2015). However, experts believe that there are several, varied methods for people to display their creative potential, contrary to the belief that creative people possess all of these attributes (Isaksen, Dorval, & Treffinger, 2017).
Conversely, creative goods can be both material and immaterial, like learning or gaining a new skill. Appraising creative works is constantly a topic of dispute because to the large number of factors that needs to be taken into consideration. The novelty dimension takes into account the product's original contribution to a field; the resolution aspect takes into account how well the product resolves the issue that inspired its development; and finally, the style dimension takes into account the development or outcome of making the product more appealing.

Office Technology and Management

According to Aliyu (2017), Office Technology and Management (OTM), a part of Business Education, is intended to produce hybrid administrative professionals who can meet the demands of a dynamic and heavily computerized work environment, particularly in the current age of globalization where new technology and machines are constantly being developed. Office Technology and Management is a new nomenclature that replaced the former Secretarial Studies Programme. According to Aromolaran (2017) it was introduced by the National Board of Technical Education (NBTE) in 2004 to make the programme and its recipients more Information and Communication Technology compliant and to adequately fit into the world of work, particularly in the 21st century global workplace.
Office Technology and Management, as a skill-acquiring discipline, continues to be a vital medium for the dissemination of the necessary ICT knowledge and skills, enabling its graduates to embrace globalization and fulfill the needs of the modern workplace. According to Udo (2019), the Office Technology and Management curriculum's ICT-related courses have the most contact hours, with the goal of ensuring that graduates are competent in using ICT resources in the workplace.
According to Okoji (2018), the majority of Office Technology and Management graduates lack ICT knowledge and the skills they have acquired are insufficient to meet the demands of the labour market

and the growth of technology. Therefore, it is not surprising to find numerous OTM graduates around the country without productive employment. Office Technology and Management students can only learn ICT skills for productive work or job creation if the programme is given a level playing field by the various education stakeholders. Additionally, it was stated that graduates in Office Technology and Management have access to a wide range of business options that would allow them to support themselves while making the most possible contribution to national advancements. They are able to work with computers and other ICT tools, and they can even provide consulting services to governmental and non-governmental groups.

Innovations in Office Technology and Management Programme

Due to creativity and innovations, the Office Technology and Management programme, like its parent field of study (conventional Education), has seen significant modifications and evolution. As close as the voice and the environment will allow, the lecturers and the pupils must be in close proximity to one another. The use of chalk and blackboards is gradually being replaced by the use of computers and electronic projectors as a result of the introduction of contemporary educational innovations and equipment. The distance between teachers and pupils has been widened through video and audio electronic conferencing, transforming the area into a global classroom. Therefore, if specific devices and facilities weren't created, one can only picture the level of insufficiency that would have affected the teaching and learning environment in the Office Technology and Management programme.

The relative ease with which current teachers impart knowledge to their students demonstrates the enormous role that invention and innovations have played in the teaching and learning of the Office Technology and Management programme. In addition to making it easier to illustrate concepts and organize information in a classroom using electronic power-points, more inventions have started to serve as the foundation for various self-employment. Recently, educational machine have been invented which greatly uplifted and enhanced the effective teaching and learning in Office Technology and Management programme and these include the following: Electricity, Television and Audio/visual cassette tapes, Radio, CDROM, DVD, Internet, Audio conferencing, Video-conferencing, Web-Based Training programmes, E-learning, Public address system, Computer, Power point etc. These ICT resources are excellent resources for academic staff, including teachers, researchers, and students. According to research, the development and use of ICT facilities has changed the way that schools operate by improving the efficacy and efficiency of teaching and learning while also boosting student participation. The advantages of using ICT in classrooms are emphasized in numerous researches. Mello (2019) also pointed out that access to ICT facilities can boost instructors' productivity and zeal, promote teamwork and preparation, aid in the adaption of student-centered teaching methodologies, lessen their workload, and build relationships with students. It will be required to make an effort to explain each device and its purpose in order to have a better understanding of these inventions and their contribution to the improvement of the Office Technology and Management programme.

Audio-Cassette Tapes: Audio tapes can be played by any standard cassette player. Though audio, the tapes can convey information that may be easier to illustrate with sound than simply through text or diagram. Audio tapes can accompany other means of instructions (print-based materials, classroom teaching etc) and provide detailed information in a step-by-step manner (Perraton, 2020). Audio tapes are recordable and thus can be reproduced easily and cheaply. They can be stopped to allow for classroom interaction and discussion. They can be replayed at instances where it might be beneficial to repeat parts of the lesson. They are portable and radio programmes can be replayed at a later date (Nunes and Gaibe, 2018).

CD-ROM: Compact Disk Read only memory (CD-ROM) is an information technology with great potential for Business Studies by teachers/students. The services provide current awareness information to library users. Nunes and Gaibe (2018) reported that CD_ROM can be used in libraries to store a variety of things such as lesson notes, tests to be given to students etc. It is of high value and very resistant to hostile climate, hence it is often more secured than print materials.

Power Point is software that is used to enlarge project reading materials, pictures, motionless and motion films. The materials to be projected are prepared in slides in a computer and projected through a

computer. Power Point presentation can accommodate numerous teaching strategies from practical lesson, to experimentations, demonstration, illustrations etc. With Power Point, teaching becomes refreshingly new, interesting, real, persuasive and lasting in the memories of learners. This is because presentations created with power point can add audio and visual effects, making them look professional or flashy to meet high standard of presentation (Igwe, 2018, Ndukwe, 2019). In an information technology age, the use of power point (PPT) can be advantageous in many ways in the business education delivery system. It can enable a business education teacher to graphically present his lesson, it can provide lesson notes that can be used in team teaching and his lessons can be taught in his absence by a member of his team. Using the power point presentation, business education teachers can prepare teaching slides of the scheme of work, the syllabus, and the curriculum. Thus lessons are prepared well in advance electronically and utilized periodically in the classroom.

Projectors are basic equipment in classrooms. In these rooms, short throw and ultra-short throw projectors let educators create large and impactful images even in small spaces. These projectors offers an excellent solution for classrooms and training facilities that want to enhance learning and get students involved in presented subject matter in new ways. Interactive projectors, which mimic a smart board, can project on any surface in the classroom, making educational applications compelling for students. These projectors work seamlessly with interactive software applications which are run on a computer and projected on a screen.

The Computer: Ndukwu (2019) opined that a computer is an electronic machine which, under the control of stored programmes, can accept data in a prescribed form, process data and supply the results as information in a specified form. The computer can be programmed to accept data (input) process data into useful information (output) and store data in a secondary storage device of safekeeping for later use. A computer is a machine that follows instruction in order to process data, solve a specific problem or accomplish a particular task. It can also be defined as a programmable machine, which responds to a specific set of instructions in high speed and in a well-defined manner. In education, computers are used in teaching a large number of students thereby solving the problem associated with overcrowded classroom.

Computer-based Education: with the advent of computer-based learning, instructions are shifting from traditional methods of instruction to computerized methods of instruction in developed nations. Through the use of computer, the roles of many teachers are changing from the traditional lock-step giver of information to that of presenter, manager and facilitator of learning. For instance, in the United Sates, computers have been described as “the new basic” of education and the internet as “the blackboard of the future” (Nwosu, 2019). Today, teachers are expected to make use of modern instructional methods which are appropriate for the students and which contribute to the development and employment conditions, and can assist them to carry out swiftly, efficiently and effectively what has to be done in the teaching-learning environment.

Computer-Assisted Instruction (CAI): Computer-assisted instruction (CAI) is an interactive instructional method that uses a computer to present material, track learning and direct the user to additional material which meets the students' needs. It can also be used to describe internet based instruction through the use of web pages, web bulletin boards, list-serve and news pages, video and real audio, graphics, and hands-on applications. Additionally, self-teaching programmes on CD-ROM or the emerging DVD are available forms of Computer Assisted Instruction (CAI) CAI learning may use a combination of text, graphics, sound and video in the learning process. It is especially useful in distance learning situations. The explosion of the internet as well as the demand for distance learning has generated great interest and expansion of Computer Assisted Instructions.

Audio-Conferencing: Audio-conferencing allows for a two-way real time communication between the instructor and the learner (Ojeaga & Igbinedion, 2017). Audio-conferencing technology uses the telephone system infrastructure, where the key component is an electronic device called an audio-

conferencing "Bridge". The bridge acts as the main hub for the conference, where the participants simply dial into the bridge to connect to the conference, calls can also be made from the bridge when the calls are combined so that the connected calls can converse simultaneously (Aina, 2012). The number of participants is dependent on the number of lines terminated at bridge. Audio-conferencing can also be carried out using the Internet telephony where digitalized voice packets are sent between individuals over the Internet.

Audio Media: Audio media are materials that create aural impression thereby causing the receivers to listen with discrimination and rapt attention. Audio materials can be used effectively in teaching, listening as well as speech skills. It could be used for presenting facts, stimulating the imagination and influencing peoples' attitude. These audio media are usually most readily available in homes and in schools and Colleges. They are most versatile in application in that they could be applied in very many situations, such as: for instruction, entertainment and information dissemination.

Video-Conferencing: Video-conferencing is an ICT facility, which enables the teachers and students to discuss online. It combines both audio and video. This can be achieved through Internet chartrooms. This ICT based multimedia facility enables information, discussion, news, conferences and knowledge sharing between various sources of information at the same time and target audience some distances away to communicate face to face electronically. This ICT facility enables people in different locations in the world to hold meetings and also allows participants at the same time to share knowledge.

The Internet: Nwosu (2018) averred that the internet is a global collection of many different computer networks linked together. The internet is an information super-highway or cyber space, the largest computer network that turned the globe into a tiny village, allowing people to share information and equipment. As a road allows travelling through different areas of the world, so the internet allows information to flow through many different interconnected computer networks. Aliyu (2017), described the internet as a room filled with many spiders, each spinning its own web, the webs are so interconnected that the spiders can travel freely within the maze. Ikelegbe (2020) described the internet as an information superhighway of information infrastructure to emphasize the expectation that it would transform the way information is created, manipulated, stored, retrieved, transferred and utilized. The internet is the fastest growing computer network with millions of users worldwide and has been found to assist users to easily obtain and share information available worldwide.

The internet provides an environment where teachers and students access and study course materials on-line and also involves the use of e-learning tools such as the Internet, telephone, online whiteboards, break-away rooms, discussion board, chat and messaging programmes that allow for real time interaction between the teachers and students. It can also be used to transmit text, graphics, images, animation or video and the most required tools for an online learning include a computer and an internet connection, and can be achieved through; Digital Subscriber Line (DSL) Local Area Network (LAN).
Keyboarding: Keyboarding has been the primary course taught by business education programmes at the secondary school level. Because of the computer, keyboarding is seen by many as a basic skill needed by all students. Ikelegbe (2020) refers to keyboarding as an "enabling skill tool needed by almost every worker in all types of organizations and at every level in the hierarchy of these organization". In addition because of the wide spread prolific use of computers by younger students, the need for keyboarding has presented more challenges to Office Technology and Management programme.

Conclusion

Office Technology and Management programme has been altered by innovations, which has also made teaching and learning a painless process. It can be added that creativity, invention, and innovations have become the foundation and pillars of the Office Technology and Management programme, and we are encouraged to join the race by being creative in order to make office technology education a commendable programme in schools. The more office manager graduates we produce, the more

entrepreneurs we foster, and the less dependent on government the young people will be. The end result is that, if correctly incorporated with contemporary technologies, the Office Technology and Management programme can and will eventually remove the army of unemployed teenagers from the streets of our cities and restore the dignity of labour.

Recommendations

Based on the conclusion, the following recommendations were made

1. Government should focus on and encourage the culture of innovations and creativity.
2. Polytechnics should pursue research oriented programmes. Some great inventions today can be traced to the ideas and works of students and dons.
3. Government should strictly monitor the implementation of Technology oriented programmes and ensure that funds are judiciously applied to the target areas.

REFERENCES

Aina F. T. (2012). Business Education, Technology and National Development. *Business Education Journal 3(5) 1-8.*

Aliyu, M. M. (2017). Business Education in Nigeria: Trends and Issues. Ilorin, Goshy Multimedia.

Almeida, L. S., & Wechsler, S. M. (2015). Excelência profissional: a convergência necessária de *32*(4),763-771.

Aromolaran, E A (2017). An Evaluation of the Continuous Relevance of Secretaries in the Automated Office. *Business Education. Journal. 4(1)*, 63-70.

Bledow, R., Frese, M., Anderson, N., Erez, M., & Farr, J. (2019). A dialectic perspective on innovation: Conflicting demands, multiple pathways, and ambidexterity. *Industrial and Organizational Psychology*, *2*(3), 305-337

Cabral, R. (2017). Development in Science. In J. Heilbron (Org.), *The Oxford Companion to the history of modern science* (pp.205-207). New York: Oxford University Press.

Care, E., & Luo, R. (2016). *Assessment of transversal competencies in education: policy and practice in the Asia-Pacific Region* Paris: UNESCO.

Igwe, S.O. (2018). Introduction to Information processing and basic programming. Aba: matik educational books

Ikelegbe, S. (2020). Information and Communication Technology as Tools for Developing Nigeria Education Sector. Journal of Business Studies and Technology Development 3(2) 127-136.

Isaksen, S., Treffinger, D., & Dorval, K. B. (2017). Clarifying our CPS vocabulary. *Communiqué Creative Problem Solving Group,* 11, 7-10.

Kaufman, J., & Beghetto, R. (2019). Beyond big and little: The four c models of creativity. *Review of General Psychology, 13*(1), 1-12.

Mello, M. T. L. (2019). Propriedade intelectual e concorrência. *Revista Brasileira de Inovação, 8*(2), 371-402.

Ndukwe, C. M. (2019). Window-based application packages. Enugu: EL'DEMAK publishers.

Nunes, C.A.A & Gaible, E. (2018). Development of multimedia materials.

Nwosu, B. O. (2019). Competencies in office information systems for a sustainable secretarial studies programme in the 21st century: A critical analysis. Business Education Journal, 3(3), 254 – 258.

Ojeaga, I. J. & Igbinedio, V. I. (2017). Potentials of E-learning as a Study Tool in Business Education in Nigerian School. International Education Studies, 5(5), 218-225.

Okoji, B. I. (2018) Secretarial Administration Practice in this Millennium: Trends and Issues. Secretarial Forum-*Journal for the Promotion and advancement of Secretarial Profession*.Vol.3

Oliver, Y.B. (2012). The Impact of Cooperative Education on the Performance of Business Students in Practical Vocational Business Courses. Multidisciplinary Journal of Academic Excellence, 17(2) 78-85.

O'Quin, K., & Besemer, S. P. (2016). Using the creative product semantic scale as a metric for results-oriented business. *Creativity and Innovation Management*, *15*(1), 34-44.

Organization for Economic and Cooperation Development (2016). *Innovation strategy*

Perraton, H. (2020). Teacher Education Guidelines: Using Open and Distance Learning. Retrieved 13th May, 2020. http://unesco.unesco.org

Udo, M.P (2019). Attitude of vocational business education students towards acquiring maximum vocational business skills and competencies for sustainable development in Nigeria. Asian Journal of Social Science & Humanities, 3(4), 113-123.

DIGITALIZING INFOR-SECURITY POSTURE: AN ANALYSIS OF INFOR-SECURITY ARCHITECTURE AND INFOR-PROTECTION LAW OF COMMERCIAL BANKS IN RIVERS STATE, NIGERIA.

Julian Nwaonumah Julian ,Oke
Department of Office technology and Management Education
Federal College Of Educaion (TECH) Omoku, Rivers State, Nigeria.
nwaajulie@gmail.com;
07032472901

Dr. Erien-naikachep Maurice ,Ikuru
Department of Office and Information Management
Ignatius Ajuru University of Education, Rumuolumeni Port Harcourt, Nigeria.
mauriceikuru95@gmail.com;
08064345396
&
Kora Francis ,Atandikiari
Doctoral Student, Department of Office and Information Management
Ignatius Ajuru University of Education, Rumuolumeni, Port Harcourt, Nigeria.
atandikiarikora@gmail.com;
08033261361

ABSTRACT

This study on Digitalizing Infor-Security Posture: An Analysis of Information Security Architecture, and Information Protection Law of Commercial Banks in Rivers State, Nigeria investigate and analyze information security architecture, information protection law of Commercial Banks in Rivers State. Generally, the objective of the study was to empirically examine how information security architecture and information protection law of Commercial Banks in Rivers State aligned with the digitalization of information security posture drawing its indicies such as, incedent reponse and management, cyptography and scalability on one side while personal data protection, data breach and cross border data trasnsfer on the other side. The study adopted explanatory survey research design. The population of the study consisted of two hundred and thirty (230) top managers from twenty-three (23) Commercial Banks operating in Rivers State, Nigeria, as top 10 managers were chosen from each bank. By census study, the entire population was employed as the sample size of the study. The reliability of the instrument was ascertained using Crombach Alpha with the least coefficient up to 0.743. Out of 230 copies of the questionnaire distributed, 220 copies of the questionnaires were retrieved. The data obtained from the field were analyzed using Spearman's Rank Order Correlation Coefficient and t-test with the aid of SPSS Version 22.0. Three hypotheses were tested using Spearman Rank Order Correlation. The study found that infor-security architecture with its selected indicies: incidences response & management, cryptography and scalability. On the other hand infor- proctection law with the selected incidicies such as: personal data protection, data breach notification and cross border data transfer has significant positive relationship with operational efficiency and competitive advantage of Commercial Banks in Rivers State. The study concludes that the digitalization of information security in commercial banks not only fortifies their defenses against cyber threats but also drives operational efficiencies and fosters a competitive edge. The study recommended amongst other things that banks should develop and regularly update incident response plans that detail specific steps for identifying, mitigating, and recovering from security incidents.

Keywords: *Information Security Architecture, incident response & management, Cryptography, scalability Information Protection Law, personal data protection, Data breach notification and cross border data transfer*

INTRODUCTION

In the rapidly evolving digital landscape, the importance of robust information security measures cannot be overstated. Commercial banks, as custodians of sensitive financial data, are particularly vulnerable to cyber threats and data breaches. This vulnerability necessitates a comprehensive approach to information security that encompasses both legislative frameworks and technical architectures. Information protection laws serve as the legal backbone for securing sensitive data against unauthorized access, misuse, and breaches. In Nigeria, the legal framework for data protection, including the Nigeria Data Protection Regulation (NDPR) and other relevant laws, plays a crucial role in safeguarding sensitive information held by organizations, particularly

commercial banks (Anifalaje, 2024). These regulations emphasize the responsibilities of entities in securing personal data, upholding privacy rights, and implementing robust security measures to prevent unauthorized access and breaches. Compliance with these laws is paramount for commercial banks in Rivers State to avoid severe legal consequences, financial penalties, and reputational harm that may arise from non-compliance, highlighting the significance of stringent data protection practices within the banking sector. The enforcement of information protection laws is essential not only for regulatory adherence but also for maintaining trust with customers and protecting against potential data vulnerabilities that could lead to exploitation for corrupt purposes (Gulyamov&Raimberdiyev, 2023).

The NDPR, introduced in 2019, provides a comprehensive framework for data protection in Nigeria. It outlines the rights of data subjects, the obligations of data controllers and processors, and the penalties for data breaches. Commercial banks must adhere to the Nigerian Data Protection Regulation (NDPR) by implementing measures like data encryption, secure data storage, access controls, and regular security audits to safeguard sensitive information. Furthermore, the Cybercrimes (Prohibition, Prevention, Etc.) Act of 2015 is crucial in protecting information systems and critical infrastructure from cyber threats, emphasizing the importance of cyber resilience in the financial sector (Crisanto&Prenio, 2021). Studies highlight the significance of cybersecurity in banking, with a focus on governance strategies, human resources, and risk management to ensure a robust cybersecurity framework. Cognitive models have been developed to assess the level of protection of computer networks and critical infrastructure, aiding in predicting cybersecurity states and implementing necessary preventive mechanisms. Efforts to mitigate cybercrimes in banks involve public awareness, budget allocation, management support, and skilled personnel to enhance cybersecurity measures (Mwita&Mhina, 2023).This legislation criminalizes various cyber offenses, thereby providing a legal deterrent against cybercrimes targeting financial institutions. While legal frameworks establish the foundation for information protection, the implementation of a robust information security architecture is essential for translating these laws into practice. This study measured information protection law with personal data protection, data breach notification and cross border data transfer.

In the contemporary digital era, the protection of personal data has become a critical concern for organizations, particularly in the financial sector. Personal data protection refers to the practices and policies implemented to safeguard individuals' personal information from unauthorized access, use, or disclosure. This includes data encryption, secure storage, and access controls designed to ensure the confidentiality, integrity, and availability of personal data. A data breach, defined as any unauthorized access to, or disclosure of, personal data, poses significant risks, including financial loss, reputational damage, and regulatory penalties.

Data breach notification is a regulatory requirement mandating organizations to inform affected individuals and relevant authorities about a data breach within a specified timeframe. This practice is essential for mitigating the impact of breaches by enabling individuals to take protective measures and allowing regulatory bodies to enforce compliance and penalties where necessary. Timely notification fosters transparency and accountability, which are crucial in maintaining trust between organizations and their customers.

Cross-border data transfer involves the movement of personal data across national boundaries. This process is particularly relevant in the globalized financial sector, where banks often operate in multiple jurisdictions. Such transfers must comply with international data protection standards and the regulatory requirements of both the originating and receiving countries to ensure that personal data remains secure

and privacy rights are upheld. Regulatory frameworks like the General Data Protection Regulation (GDPR) in the European Union set stringent guidelines for cross-border data transfers, including adequacy decisions, standard contractual clauses, and binding corporate rules.

In Rivers State, the legal landscape concerning personal data protection, data breach notification, and cross-border data transfer is primarily shaped by the Nigeria Data Protection Regulation (NDPR) and the Cybercrimes (Prohibition, Prevention, Etc.) Act of 2015. These regulations mandate commercial banks to implement robust data protection measures, promptly notify stakeholders of any data breaches, and

ensure compliance with international data transfer standards (Ikram, 2024). Adhering to these laws is crucial for upholding the integrity and security of personal data, thereby safeguarding customers' privacy and fostering trust in the banking sector. Commercial banks in Rivers State must navigate these regulatory requirements while implementing comprehensive information security architectures. By integrating stringent data protection measures, effective breach notification protocols, and secure cross-border data transfer practices, banks can not only mitigate legal risks but also enhance their overall security posture, ensuring regulatory compliance and maintaining customer trust in the digital age.

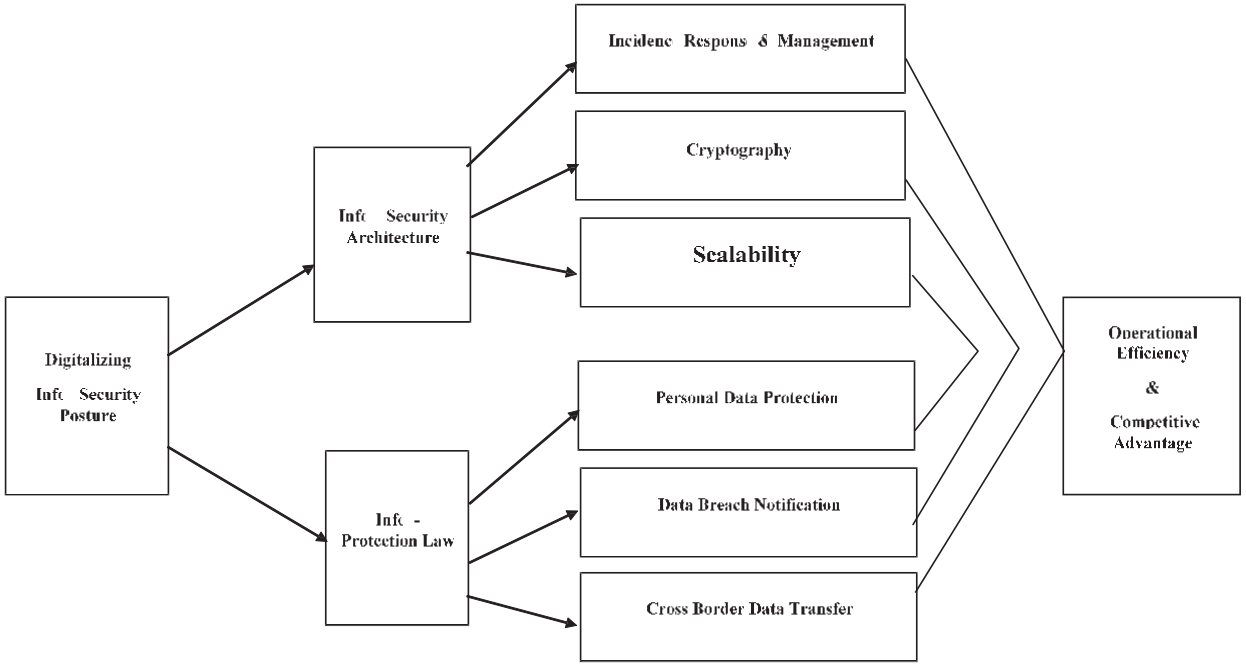
Information security architecture encompasses the structural design and deployment of security controls to protect information assets from threats. It involves a multi-layered approach that includes network security, application security, data security, and endpoint security. In commercial banks, information security architecture plays a crucial role in safeguarding against various cyber threats such as malware attacks, phishing, insider threats, and data breaches. Key components of this architecture, as highlighted across the provided research papers, include the integration of Artificial Intelligence (AI) for proactive threat detection and analysis, the implementation of firewalls and intrusion detection systems to counter advanced cyber threats, the emphasis on identity and access management, data encryption, and secure authentication to mitigate insider threats, the utilization of information protection systems to enhance financial security and combat cybercrime, and the focus on user identification, authentication, and authorization to prevent unauthorized access and ensure data integrity (Soesanto et al., 2023). By incorporating these components into their security frameworks, commercial banks can bolster their defenses and protect sensitive financial data from evolving cyber risks. These components work in concert to create a resilient security posture that can detect, respond to, and mitigate security incidents effectively. Moreover, the adoption of international standards such as ISO/IEC 27001, which provides a systematic approach to managing sensitive information, helps banks in Rivers State align their security practices with global best practices. This alignment not only enhances the security of their information systems but also boosts customer confidence and trust. As such, the study dimentionalize Information security architecture with, incident response and management, Cryptography and scalability.

In the contemporary digital realm, commercial banks encounter a myriad of cybersecurity challenges that demand resilient incident response and management, robust cryptography solutions, and scalable strategies within their information security framework (Oyewole et al., 2024). Incident response and management refer to the systematic approach organizations use to address and manage the aftermath of a security breach or cyberattack. This involves identifying, containing, eradicating, and recovering from security incidents while minimizing damage and reducing recovery time and costs. Effective incident response plans play a crucial role in maintaining operational continuity and safeguarding sensitive financial data. Incident response is pivotal in managing security breaches, ensuring business continuity, and protecting valuable personal and financial information in fintech organizations (Jangampeta, 2022). Cryptography, the practice of securing information by transforming it into an unreadable format using algorithms, is a cornerstone of information security. It ensures that sensitive data remains confidential and secure during transmission and storage. Techniques such as encryption, digital signatures, and hashing are employed to protect data integrity and authenticity. In the banking sector, cryptography is crucial for safeguarding customer information, transaction data, and proprietary banking systems against unauthorized access and cyber threats.

Scalability in information security architecture refers to the capability of a system to handle increasing amounts of data or users without compromising performance or security. As commercial banks in Rivers State continue to grow and adopt new technologies, their security systems must be scalable to accommodate expanding operations and evolving cybersecurity threats. Scalable security architectures ensure that banks can maintain robust security measures even as they scale their services and infrastructure to meet market demands.In the context of commercial banks in Rivers State, integrating incident response and management, cryptography, and scalability into their information security architecture is crucial (Farayola, 2024). By implementing incident response plans, banks can effectively address security breaches, reducing potential damage and regulatory penalties. Utilizing cryptographic

measures ensures the confidentiality and integrity of financial data, enhancing customer trust and compliance with data protection laws. Moreover, scalability allows banks to expand their digital services and infrastructure while maintaining robust security measures, especially as they adopt cloud services and mobile banking innovations. Implementing scalable security solutions, such as modular frameworks and automated threat detection systems, enables banks to adapt to evolving security requirements and technological advancements, ultimately enhancing their cybersecurity posture, aligning with regulatory mandates, and supporting sustainable growth in the digital era (Anifalaje, 2024).

Conceptualizing framework showing Digitalizing Infor-Security Posture: An Analysis of Infor-Security Architecture and Infor-Protection Law of Commercial Banks In Rivers State Nigeria.



Aim and Objectives of the Study

The aim of the study was to examine the relationship between Infor-Security Architecture and Infor-Protection Law of Commercial Banks in Rivers State. The specific objectives of the study include the following:

1. To ascertain the relationship between infor-security architecture and operational efficiency of Banks in Rivers State.
2. To determine the relationship between infor-security architecture and competitive advantage of Commercial Banks in Rivers State.
3. To examine the relationship between infor-protection law and operational efficiency of Commercial Banks in Rivers State.
4. To determine the relationship between infor-protection law and competitive advantage of Commercial Banks in Rivers State.

Concept of Digitalizing Infor-Security Posture

In today's digital age, the significance of information security has escalated, especially within financial institutions such as commercial banks. The integration of digital technologies into banking operations necessitates a robust information security posture to safeguard sensitive data and maintain trust with clients. This transformation is particularly pertinent in regions like Rivers State, where the banking sector plays a crucial role in the local economy. Digitalizing an information security posture involves implementing advanced digital tools and strategies to protect information systems from cyber threats (Igwenagu et al., 2024).

Information security architecture refers to the structural design of an organization's security framework, encompassing policies, procedures, and technical measures to prevent unauthorized access, data breaches, and cyber-attacks. Information protection laws, on the other hand, are legal frameworks designed to ensure the

confidentiality, integrity, and availability of data by setting standards and regulations for handling sensitive information.

The financial sector, including commercial banks in Rivers State, faces unique challenges in information security due to the high value of the data they handle and the increasingly sophisticated nature of cyber threats. These banks must navigate a complex landscape of regulatory requirements and technological advancements to maintain their information security posture. Digitalizing this posture involves adopting cutting-edge technologies such as artificial intelligence, machine learning, and blockchain to enhance security measures (Farayola, 2024). For instance, AI and machine learning can detect and respond to threats in real-time, while blockchain provides a tamper-proof ledger for secure transactions. In Rivers State, commercial banks have made strides in digitalizing their information security architecture by investing in secure infrastructure, training personnel, and complying with both local and international information protection laws. These efforts are crucial for maintaining the integrity of financial transactions and protecting customer data from breaches. However, the rapid pace of technological change requires continuous adaptation and vigilance. Banks must regularly update their security protocols and invest in ongoing staff training to keep pace with evolving threats (Farayola, 2024).
Moreover, the role of government and regulatory bodies in shaping the information security landscape cannot be overstated. In Rivers State, initiatives to strengthen information protection laws and enforce compliance among financial institutions are essential. Collaboration between banks, government agencies, and cybersecurity experts can foster a more resilient banking sector capable of withstanding cyber threats. The digitalization of information security posture in commercial banks is not just a technological upgrade; it represents a strategic shift towards proactive risk management and robust regulatory compliance. By leveraging advanced technologies and adhering to stringent legal frameworks, commercial banks in Rivers State can enhance their security posture, thereby protecting their assets and customers' trust. This transformation is pivotal in ensuring the long-term sustainability and competitiveness of the banking sector in an increasingly digital world (Adeyemo&Obafemi, 2024).

Infor-Security Architecture

In the modern digital landscape, information security architecture has become crucial for organizations, especially in the financial sector, where sensitive data is highly targeted by cyber threats. Information security architecture refers to the structural design and deployment of security controls and measures to protect information assets from various threats. It involves a multi-layered approach that includes network security, application security, data security, and endpoint security. The objective is to create a resilient security posture capable of effectively detecting, responding to, and mitigating security incidents. Information security architecture is essential for any organization's overall information security strategy. It involves implementing security policies, processes, and technologies to protect information assets against unauthorized access, use, disclosure, disruption, modification, or destruction. A well-designed architecture plays a crucial role in aligning with organizational goals and regulatory requirements, ensuring comprehensive coverage of all information security aspects. This alignment is essential to address the increasing risks associated with the integration of advanced technologies like unmanned vehicles. Security architecture should not only aim to make systems robust and resilient but also strive to improve defenses in the face of hostile actions, making them antifragile (Koien, 2020).
In commercial banks, robust information security architecture is critical. Banks handle vast amounts of sensitive data, including personal information, financial transactions, and proprietary information, making them prime targets for cybercriminals. Implementing a comprehensive information security architecture is essential to safeguard this data and maintain trust with customers and stakeholders. Information security architecture plays a crucial role in safeguarding critical systems like those in the banking sector. Network security, as discussed by Lu et al (2023), involves deploying firewalls, intrusion detection and prevention systems, and secure network protocols to defend against cyber threats like malware and denial-of-service attacks. Application security, focuses on ensuring that software applications are devoid of vulnerabilities by implementing secure coding practices, conducting regular security testing, and utilizing application firewalls. Additionally, having a well-defined security architecture aligned with the business strategy, as emphasized by Madsen (2022), is essential for

effectively addressing cyber threats and building a robust foundation for cybersecurity measures. Integrating these components into comprehensive security architecture is vital for enhancing the overall security posture of banking systems and protecting sensitive data from potential breaches and attacks.

Data security involves protecting data at rest, in transit, and in use through encryption, access controls, and data masking. Endpoint security protects devices such as computers, smartphones, and tablets that connect to the bank's network with antivirus software, endpoint detection and response systems, and mobile device management solutions. Identity and access management (IAM) systems ensure that only authorized users can access sensitive information and perform specific actions.In the context of digitalizing the information security posture of commercial banks in Rivers State, integrating these components is vital. These banks operate in a highly regulated environment, where compliance with the Nigeria Data Protection Regulation (NDPR) and the Cybercrimes (Prohibition, Prevention, Etc.) Act of 2015 is mandatory. In the digital age, a comprehensive information security architecture plays a pivotal role in enhancing cybersecurity posture, aligning with regulatory requirements, and adhering to industry best practices (Mpekoa, 2024). By prioritizing incident response and management, organizations, especially in the banking sector, can effectively protect sensitive data, ensure regulatory compliance, and support sustainable growth. Implementing advanced cryptographic techniques and ensuring scalability are crucial components of a robust security architecture, enabling banks to combat evolving cyber threats and maintain the integrity, confidentiality, and availability of financial information (Ewuga, 2023).

Incidences Response & Management

In the contemporary digital landscape, incident response and management play a vital role in the information security architecture of commercial banks, especially in Rivers State. These processes involve a systematic approach to preparing for, detecting, containing, eradicating, and recovering from cybersecurity incidents, as highlighted in the works of Guerra et al., (2023); Serrano et al., (2024). By implementing incident response strategies, organizations can minimize the impact of security breaches, ensure operational continuity, and safeguard sensitive financial data. Effective incident response and management begin with preparation, which involves developing and regularly updating incident response plans, training staff, and conducting simulated cyberattack drills. These preparatory steps ensure that the bank's personnel are well-equipped to handle potential security breaches efficiently. Detection is the next critical phase, where advanced monitoring tools and techniques are employed to identify and analyze security threats in real-time. Prompt detection allows for quicker responses, reducing the window of opportunity for attackers to inflict damage. Once a security incident is detected, containment strategies are implemented to isolate the affected systems and prevent the threat from spreading further within the network. This phase is vital for limiting the scope and impact of the incident. Following containment, the eradication process involves removing the threat from the system, whether it be through malware removal, patching vulnerabilities, or other remediation efforts. Finally, the recovery phase focuses on restoring affected systems and data to normal operations while ensuring that all security measures are re-evaluated and strengthened to prevent future occurrences.

The integration of incident response and management into the information security architecture of commercial banks in Rivers State is crucial due to the significant amounts of sensitive data they handle, making them prime targets for cybercriminals (Anifalaje, 2024). Implementing robust incident response strategies within their security frameworks can enhance resilience against cyber threats, mitigating immediate risks and aligning with regulatory requirements like the Nigeria Data Protection Regulation (NDPR) and the Cybercrimes (Prohibition, Prevention, Etc.) Act of 2015, which mandate stringent data protection and breach notification measures. Incident response and management not only help in regulatory compliance but are also vital for maintaining customer trust and confidence, especially in the face of increasing cyber-attacks and data breaches (Ajufo&Qutieshat, 2023). By embedding these

strategies, banks can effectively safeguard their operations and customer data while demonstrating a commitment to cybersecurity best practices and regulatory standards. In the event of a security breach, how a bank responds can significantly influence public perception. Prompt and effective incident management demonstrates a bank's commitment to protecting customer data and upholding the highest security standards. This, in turn, can enhance the bank's reputation and competitive edge in the market. Incident response and management are indispensable to the information security architecture of commercial banks in Rivers State. By incorporating these practices, banks can effectively manage and mitigate the impact of security incidents, comply with regulatory requirements, maintain customer trust, and ensure the continuity and integrity of their operations.

Cryptography

Cryptography plays a pivotal role in the information security architecture of commercial banks in Rivers State, ensuring the confidentiality, integrity, and authenticity of sensitive data. In the contemporary banking environment, where digital transactions are the norm, the necessity for robust cryptographic mechanisms cannot be overstated. Cryptography plays a crucial role in safeguarding sensitive information in commercial banks by utilizing sophisticated algorithms to encrypt data, ensuring its security from unauthorized access and cyber threats (Sari et al., 2024). Techniques like symmetric and asymmetric encryption are employed to protect customer information, financial transactions, and other critical data both during transmission and while stored in databases (Alemami et al., 2019). The RSA algorithm, for instance, utilizes prime numbers to generate secure keys for encryption and decryption processes, enhancing data protection in banking systems. Cryptography not only ensures confidentiality but also addresses integrity, authentication, and non-repudiation concerns, making it an indispensable tool for maintaining trust and security in the digital realm. For instance, during online banking transactions, Secure Socket Layer (SSL) and Transport Layer Security (TLS) protocols encrypt the data exchanged between the bank's servers and the customer's device. This encryption safeguards against interception and tampering by malicious actors, ensuring that the data remains private and intact throughout the communication process. Additionally, cryptographic hashing is used to verify the integrity of data, ensuring that any alterations can be detected immediately, thus maintaining data accuracy and reliability. Moreover, cryptography underpins the implementation of digital signatures and certificates within the banks' information security framework. Digital signatures provide a means of authenticating the identity of the sender and ensuring that the message has not been altered since it was signed. This is particularly crucial in the context of financial transactions and communications, where verifying the authenticity of the parties involved is essential to prevent fraud and unauthorized activities. Certificates issued by trusted Certificate Authorities (CAs) further bolster this system by linking public keys to the identities of individuals and entities, thereby establishing a trusted environment for secure communications.

In the realm of data storage, cryptographic methods such as Advanced Encryption Standard (AES) are utilized to encrypt sensitive information stored in databases. This encryption ensures that even if the physical storage media are compromised, the data remains inaccessible without the appropriate decryption keys. Access to these keys is tightly controlled, often involving multi-factor authentication mechanisms, to prevent unauthorized access and ensure that only authorized personnel can decrypt and access the information.Commercial banks in Rivers State can enhance data protection and regulatory compliance by leveraging cryptographic solutions, as mandated by regulations like the Nigerian Data Protection Regulation (NDPR) (Anifalaje, 2024). By integrating encryption practices into their information security frameworks, banks can ensure the safeguarding of personal data, thereby building trust with customers and assuring them of the highest security standards. Cryptographic solutions, such as RSA and ECC integration, can strengthen data integrity, authentication, and confidentiality within the banking sector, offering reliable protection for client account information. Additionally, technological innovations like blockchain can further fortify the defense mechanisms of banks against fraudulent activities, contributing to a more secure, efficient, and resilient banking system (Adeyemo&Obafemi, 2024).Integration of cryptography into the information security architecture of commercial banks in Rivers State is indispensable for safeguarding sensitive data, maintaining regulatory compliance,

and ensuring the overall security of banking operations. The implementation of robust cryptographic mechanisms provides a comprehensive defense against a myriad of cyber threats, thereby enhancing the banks' ability to protect their assets and maintain the trust of their customers.

Scalability

Scalability plays a pivotal role in the information security architecture of commercial banks in Rivers State, ensuring that security measures can effectively expand alongside rising transaction volumes, data storage requirements, and technological advancements (Tøndel&Brataas, 2022). The ability to scale is crucial for maintaining robust security protocols as banks grow their services and customer base in a rapidly evolving digital landscape. In the context of commercial banks, scalability involves enhancing security infrastructure to accommodate higher loads without compromising performance or security. This entails implementing scalable encryption methods that can handle increasing data volumes. For example, modern cryptographic algorithms like Advanced Encryption Standard (AES) and Rivest-Shamir-Adleman (RSA) are designed to provide strong encryption while being efficient enough to scale with the growing data demands. Banks utilize these algorithms to ensure that their encryption processes remain effective and efficient, regardless of the amount of data being processed.

A scalable security architecture also requires the implementation of dynamic access control systems. As banks expand and more users access their systems, the complexity of managing user permissions and access rights increases. Role-Based Access Control (RBAC) and Attribute-Based Access Control (ABAC) systems offer scalable solutions by allowing permissions to be assigned based on roles or attributes, rather than to individual users. This flexibility ensures that access control remains manageable and secure, even as the number of users grows. Network security is another critical area where scalability is essential. Banks must prioritize robust network security infrastructure to manage increased traffic without compromising performance or security (Butcovan& Ivan, 2023). Strategies such as passwords, antivirus software, firewalls, encryption, intrusion detection systems, and intrusion prevention systems are crucial in mitigating cyber threats in the banking sector (Sarumi&Omotosho, 2021). Scalable network security solutions include the deployment of advanced firewalls, intrusion detection and prevention systems (IDPS), and distributed denial-of-service (DDoS) mitigation tools. These systems are designed to expand and adapt in response to increased network demands, providing continuous protection against evolving cyber threats. Cloud computing offers significant advantages in terms of scalability for information security architecture. By leveraging cloud-based security services, banks can dynamically adjust their security resources to meet fluctuating demands. Cloud platforms provide scalable solutions for data encryption, identity management, and threat detection, allowing banks to enhance their security posture without the need for extensive on-premises infrastructure. This not only ensures scalability but also provides cost efficiency and flexibility in managing security operations.

Regulatory compliance in the banking sector is a critical aspect that evolves alongside the industry's growth. Implementing scalable compliance management systems is essential to align security measures with changing regulatory standards like the Nigerian Data Protection Regulation (NDPR) (Abrahams et al., 2024). These systems leverage advanced technologies such as artificial intelligence and blockchain to automate complex compliance tasks, ensuring continuous monitoring and adaptation of security practices to meet evolving requirements. Additionally, the human aspect of information security scalability is crucial, emphasizing the need for effective monitoring systems and continuous education to ensure adherence to regulatory demands. By embracing scalable compliance management systems, banks can enhance operational efficiency, reduce costs, and maintain regulatory compliance in a dynamic and evolving regulatory landscape (Olawale et al., 2024). As banks grow, the need for skilled cybersecurity professionals increases. Implementing scalable training and development programs ensures that staff are equipped with the latest knowledge and skills to manage security effectively. Continuous education and certification programs help maintain a workforce capable of addressing complex security challenges, regardless of the bank's size.

Infor- Protection Law

In the digital age, the protection of information has become a paramount concern for organizations worldwide, particularly in the financial sector. Information protection laws provide the legal framework to ensure that sensitive data is safeguarded against unauthorized access, misuse, and breaches. These laws define the responsibilities of organizations in protecting personal and financial information, ensuring privacy, and implementing adequate security measures. The objective is to create a secure environment where data integrity, confidentiality, and availability are maintained.Information protection laws play a crucial role in establishing trust and accountability within societies. These laws aim to safeguard personal information, prevent misuse, and ensure transparency in governance. The implementation of such laws, like the Freedom of Information Act in the US and the Right to Information Act in India, has been instrumental in providing citizens with access to timely and appropriate information, thereby enhancing transparency and holding institutions accountable for their actions (Bellver et al., 2008). They mandate that organizations implement specific security practices and controls to protect data from cyber threats and breaches. These laws typically include provisions for data encryption, secure storage, access controls, and regular security audits. They also stipulate the procedures for reporting data breaches and the penalties for non-compliance. Such regulations are critical for maintaining the integrity of financial systems and protecting the interests of customers and stakeholders. In Nigeria, the Nigeria Data Protection Regulation (NDPR) and the Cybercrimes (Prohibition, Prevention, Etc.) Act of 2015 are the primary legislative instruments governing data protection. The NDPR, introduced in 2019, provides a comprehensive framework for data protection, outlining the rights of data subjects and the obligations of data controllers and processors. Adherence to the Nigeria Data Protection Regulations (NDPR) in commercial banks in Rivers State is crucial for implementing robust data protection measures, ensuring privacy, and maintaining compliance with regulatory requirements. However, the legal framework is further strengthened by the Cybercrimes Act, which criminalizes various cyber offenses and provides a legal deterrent against cybercrimes targeting financial institutions (Abdulkadir&Sambo, 2022). The NDPR emphasizes the need for data protection impact assessments to identify and minimize risks in data processing operations, particularly in intensive operations like online profiling, which involves significant personal data usage (Izuogu, 2021). Information protection laws underscores their role in enhancing cybersecurity posture. These laws compel organizations to adopt best practices in data protection, thereby reducing the risk of data breaches and cyberattacks. Compliance with these laws not only mitigates legal risks but also enhances the overall security environment, fostering trust among customers and stakeholders. In the context of digitalizing the information security posture of commercial banks in Rivers State, information protection laws play a pivotal role. As banks increasingly adopt digital technologies, the volume and sensitivity of data they handle grow, making robust data protection measures more critical than ever (Swanzy et al., 2024). Compliance with information protection laws ensures that banks implement the necessary security controls to protect customer data and maintain regulatory compliance. This alignment between legal requirements and technical security measures is essential for safeguarding data integrity and fostering a secure banking environment.Integrating information protection laws such as the Nigerian Data Protection Regulation (NDPR) and the Cybercrimes Act into the digital transformation of commercial banks in Rivers State can significantly enhance their cybersecurity posture. By adhering to these regulations, banks can protect sensitive information, reduce the risk of cyber threats, and maintain the trust of their customers (Oyewole et al., 2024). This legal and regulatory framework supports the sustainable growth of digital banking services, ensuring that banks can securely manage and protect their information assets in an increasingly digital world.

Personal Data Protection

The increasing digitalization of financial services has made personal data protection a critical concern for commercial banks, especially in Rivers State. Personal data protection refers to the practices and policies implemented to ensure the confidentiality, integrity, and availability of individuals' data. This involves safeguarding sensitive information such as personal identification details, financial records, and transaction histories from unauthorized access, misuse, or breaches.

Personal data protection in the banking sector is a critical aspect that combines technical requirements with legal obligations. Various research papers emphasize the importance of robust data protection measures in banking relationships, highlighting the need for explicit customer consent, strict security standards, and legislative improvements to safeguard personal data (Khuan, 2024; Haliwela, 2023). The legal frameworks governing personal data protection in the financial sector, such as the Electronic Information and

Transactions Law and the Omnibus Law on Job Creation, play a crucial role in ensuring transparency, data security, and fair data usage practices. Additionally, the Information Protection Law stipulates the appointment of a Data Protection Officer (DPO) in each bank to oversee compliance with data protection regulations. The DPO is responsible for ensuring that all data handling practices meet the legal requirements and for managing any data protection issues that arise. The law also emphasizes transparency, requiring banks to provide clear and accessible privacy policies and conduct regular training for employees on data protection principles. Compliance with the Information Protection Law is enforced through regular audits and inspections by regulatory bodies. Non-compliance with digital banking regulations can indeed lead to severe consequences such as fines and the suspension of banking licenses, underscoring the critical importance of adherence to these regulatory frameworks (Ofodile et al., 2024). By implementing and strictly following these measures, commercial banks in Rivers State can effectively safeguard customer data, establish trust with their clients, and uphold their reputations in a fiercely competitive digital environment.

Data Breach Notification

In today's digital age, data breaches have become a significant concern for organizations, particularly commercial banks, due to the sensitive nature of the data they handle. A data breach occurs when protected or confidential data is accessed, disclosed, or used without authorization, potentially compromising customer information. Data breach notification is the process by which affected individuals and regulatory authorities are informed about such incidents. This process is crucial for mitigating potential harm and ensuring transparency and accountability. The Information Protection Law of commercial banks in Rivers State underscores the significance of data breach notification within the realm of information governance, aligning with the broader discourse on cybersecurity and fraud prevention (Adeyemo&Obafemi, 2024; Ashraf & Sunder, 2023). This law mandates that banks promptly inform affected customers and relevant authorities upon breach discovery, outlining breach specifics, compromised data, potential risks to individuals, and remedial actions taken to mitigate the breach and prevent future incidents. The emphasis on timely and transparent notification not only aligns with best practices in data security but also serves to enhance customer trust, regulatory compliance, and overall cybersecurity resilience within the banking sector, reflecting a proactive approach to safeguarding sensitive information and maintaining stakeholder confidence. Timely and transparent communication is essential in maintaining customer trust and regulatory compliance. The Information Protection Law's strict timelines for breach notification, mandating banks to inform affected parties within 72 hours of breach discovery, play a crucial role in empowering customers to safeguard themselves against fraud and identity theft. Research indicates that consumers often fail to take necessary protective actions even after receiving breach notifications, highlighting the importance of timely alerts (Zou et al., 2019). The law also requires banks to have a comprehensive incident response plan in place. This plan should include procedures for detecting, reporting, and responding to data breaches. Having such a plan ensures that banks can act quickly to contain breaches and minimize damage. Regular security assessments and employee training are also mandated to reduce the risk of breaches and improve the bank's ability to respond effectively when they occur.

Transparency is indeed crucial in the realm of information protection, especially in the banking sector, as it fosters trust and accountability (Haryandu et al., 2023). Banks are mandated to offer clear and easily accessible details regarding any data breaches, specifying the compromised data and outlining the measures being implemented to mitigate the repercussions.

Continuous updates are essential to keep customers informed throughout the resolution process, ensuring transparency and maintaining customer confidence. Studies emphasize the significance of transparency in banking activities, highlighting how increased disclosure can aid in reducing the costs of banking crises and enhance market discipline to monitor risk-taking behaviors of banks (Manganaris et al., 2017). Therefore, a commitment to transparency not only aligns with legal requirements but also contributes to building a resilient and trustworthy banking environment. Non-compliance with data breach notification requirements can result in severe penalties, including substantial fines and reputational damage. Regulatory bodies conduct regular audits and inspections to ensure that banks adhere to these regulations. By complying with the data breach notification requirements, commercial banks in Rivers State demonstrate their commitment to protecting customer data and upholding their legal obligations. Adhering to these regulations not only helps protect customers but also enhances the bank's reputation for reliability and integrity. Prompt and transparent data breach notification reinforces the bank's commitment to safeguarding personal information, thus fostering trust and confidence among its customers. In the rapidly evolving digital landscape, where cyber threats loom large over the banking sector, effective data breach notification plays a pivotal role in upholding security and trust within financial institutions (Oyewole et al., 2024)

Cross Border Data Transfer

In an increasingly interconnected world, cross-border data transfer has become a critical issue for commercial banks operating in diverse regions, including Rivers State. Cross-border data transfer refers to the movement of data across national borders, often for processing, storage, or management purposes. This practice is essential for global financial institutions that require efficient data handling to provide seamless services to their customers. However, it also raises significant concerns about data protection and regulatory compliance. The Information Protection Law of commercial banks in Rivers State plays a vital role in addressing the complexities of cross-border data transfer (Anifalaje, 2024). This law imposes stringent requirements on banks to ensure that personal data transferred internationally is adequately protected, necessitating that the recipient country has robust data protection laws akin to those in Rivers State. Such measures are crucial for maintaining consistent levels of data security and privacy protection, regardless of where the data is processed or stored. The implementation of these regulations aligns with the global trend of enhancing personal data protection in the digital era, especially within the financial and banking sectors (Khuan, 2024); to comply with the Information Protection Law, banks must conduct thorough assessments of the data protection regulations in the destination country before transferring any personal data. This involves evaluating the legal framework, enforcement mechanisms, and data protection practices to ensure they meet the required standards. If the destination country does not offer adequate protection, banks must implement additional safeguards, such as binding corporate rules or standard contractual clauses, to protect the data during the transfer process. The law also mandates that banks obtain explicit consent from customers before transferring their personal data across borders. Customers must be informed about the transfer, the reasons for it, and the measures in place to protect their data. This transparency helps to build trust and ensures that customers are aware of how their information is being handled.

Additionally, the Information Protection Law requires banks to maintain detailed records of all cross-border data transfers. These records should include the nature of the data, the destination country, the purpose of the transfer, and the safeguards implemented to protect the data. Regular audits and inspections by regulatory bodies ensure that banks comply with these requirements and maintain high standards of data protection. Failure to comply with cross-border data transfer regulations can result in severe penalties, including fines and restrictions on data transfer capabilities. These penalties underscore the importance of adhering to the law and implementing robust data protection measures. By complying with the Information Protection Law, commercial banks in Rivers State can mitigate the risks associated with cross-border data transfers and ensure that customer data is protected at all times.

Effective management of cross-border data transfer is essential for maintaining the integrity and trustworthiness of the banking sector. Adhering to information protection laws is crucial for banks to securely transfer and safeguard personal data across geographical boundaries, enhancing customer trust and maintaining their reputation in the global financial landscape. Studies emphasize the significance of data security in fostering consumer trust in fintech services (Druga, 2024), highlighting the need for robust cybersecurity protocols, regulatory compliance, and transparent communication strategies to mitigate risks and build confidence.

Operational Efficiency & Competitive Advantage

The implementation of digitalizing information security posture within the information security architecture and information protection law in commercial banks in Rivers State is pivotal in achieving operational efficiency and competitive advantage. This transformation is driven by the increasing reliance on digital technologies and the corresponding rise in cyber threats, necessitating robust measures to safeguard sensitive financial information. The digitalization of information security posture in commercial banks can significantly enhance operational efficiency by integrating advanced security technologies like artificial intelligence (AI), machine learning, and blockchain (Farayola, 2024). AI empowers proactive threat detection through real-time analysis of data, while machine learning enables dynamic adaptation to emerging threats, automating routine security tasks and reducing human error. Blockchain technology ensures transactional data integrity and transparency, reducing fraud risks and unauthorized access, while also facilitating secure data sharing among stakeholders (Odeyemi et al., 2024). By combining these technologies, banks can streamline security processes, detect anomalies swiftly, prevent security breaches effectively, and automate the execution of secure transactions, ultimately bolstering the resilience and efficiency of their security operations in the dynamic landscape of digital banking. Another crucial aspect of operational efficiency is the optimization of resource allocation. Digitalizing the information security posture allows banks to adopt a proactive approach to risk management. Predictive analytics can forecast potential security breaches, enabling banks to allocate resources more effectively and prioritize areas that require immediate attention. This proactive stance not only mitigates risks but also reduces the costs associated with security incidents, such as data breaches and regulatory fines. Moreover, the integration of security measures into the overall information security architecture ensures a cohesive and unified approach to data protection, further enhancing operational efficiency.

Competitive advantage is also significantly bolstered through the implementation of a digitalized information security posture. In an industry where trust and reputation are paramount, demonstrating a commitment to robust security measures can differentiate a bank from its competitors (Farayola, 2024). Customers are increasingly aware of the importance of data security and are likely to choose banks that prioritize the protection of their personal and financial information. By investing in state-of-the-art security technologies and adhering to stringent information protection laws, commercial banks in Rivers State can build and maintain customer trust, fostering long-term loyalty and retention. Furthermore, compliance with information protection laws is essential in maintaining a competitive edge. Regulations such as the Nigeria Data Protection Regulation (NDPR) mandate strict data protection standards, and non-compliance can result in substantial penalties and reputational damage. Digitalizing information security in banks through innovative technologies like Artificial Intelligence (AI), Blockchain, and Business Intelligence (BI) can indeed enhance their compliance with regulations, thus avoiding fines and bolstering their reputation as secure and responsible institutions (Onyshchenko et al., 2023). These technologies enable real-time threat detection, proactive risk management, and secure transactional data storage, ensuring the integrity and confidentiality of financial information while meeting regulatory requirements (Dopamu et al., 2024). This compliance also opens up opportunities for collaboration with international partners who prioritize data security and regulatory adherence. In addition, the digitalization of information security posture fosters innovation and agility.

With secure and resilient IT infrastructures, banks can confidently explore new digital services and products, such as mobile banking, digital wallets, and personalized financial advisory services. This ability to innovate and quickly adapt to changing market demands is a key competitive advantage in the fast-paced financial sector. By leveraging cutting-edge security technologies, commercial banks in Rivers State can offer innovative solutions that meet the evolving needs of their customers, thereby attracting new clients and expanding their market share. The implementation of a digitalized information security posture within the information security architecture and information protection law framework significantly enhances both operational efficiency and competitive advantage for commercial banks in Rivers State. Through automation, resource optimization, and proactive risk management, banks can streamline their operations, reduce costs, and improve overall efficiency. Simultaneously, by prioritizing data security and regulatory compliance, banks can build trust, foster customer loyalty, and maintain a competitive edge in the dynamic financial landscape. The integration of advanced security technologies not only safeguards sensitive information but also empowers banks to innovate and adapt, ensuring sustained growth and success in the digital era (Adeyemo&Obafemi, 2024).

Theoritical Review

The Technology Acceptance Model (TAM), developed by Fred Davis in 1989, provides a robust theoretical framework for analyzing the digitalization of information security posture within the information security architecture and information protection law of commercial banks in Rivers State. The theory's relevance lies in its focus on the factors that influence the acceptance and usage of new technologies, making it an ideal lens through which to examine the adoption of digital security measures in the banking sector. The TAM posits that two primary factors, Perceived Usefulness (PU) and Perceived Ease of Use (PEOU), play a critical role in determining users' acceptance of technology. Perceived Usefulness refers to the degree to which an individual believes that using a particular system will enhance their job performance. In the context of commercial banks, if employees perceive that digital security measures, such as advanced encryption techniques and automated threat detection systems, will significantly improve the efficiency and effectiveness of their work, they are more likely to embrace these technologies. This perceived enhancement in job performance is crucial for fostering a positive attitude towards the adoption of digital security measures.

Perceived Ease of Use is the degree to which an individual believes that using a particular system will be free of effort. For commercial banks, the implementation of user-friendly digital security solutions is essential. If the new security systems are intuitive and easy to navigate, employees will experience less resistance and frustration, leading to higher acceptance rates. Ease of use not only encourages initial adoption but also ensures sustained usage of the security measures, thereby strengthening the overall information security posture of the bank.

The TAM further asserts that Behavioral Intention to Use (BI) is influenced by both PU and PEOU. When employees find digital security technologies both useful and easy to use, their intention to utilize these systems increases. This behavioral intention is a strong predictor of actual system use. In the banking context, this means that when staff members recognize the benefits and user-friendliness of advanced security measures, they are more likely to integrate these tools into their daily operations, enhancing the bank's overall security framework. Actual System Use, the end result in the TAM, is determined by the users' behavioral intentions. For commercial banks in Rivers State, achieving high levels of actual system use is critical. It ensures that the digital security measures implemented are effectively utilized, providing robust protection against cyber threats and regulatory compliance. This alignment between behavioral intention and actual use underscores the importance of addressing both perceived usefulness and ease of use during the implementation phase.

The justification for applying the TAM to this analysis lies in its proven applicability across various technological contexts. The model's emphasis on user perceptions aligns well with the practical considerations of implementing digital security measures in commercial banks. By understanding and addressing the factors that influence technology acceptance, banks can design and deploy security systems that not only meet technical requirements but also gain user acceptance, thereby maximizing their effectiveness.

Empirical Review

Grobler&Louwrens (2005) investigated the critical role of information security within organizational operations, highlighting how it has become an indispensable aspect of modern business practices. They examined the increasing implementation of security countermeasures, such as security policies, intrusion detection systems, access control mechanisms, and anti-virus products, which organizations deploy to protect their information and information assets from potential threats. The authors conducted an in-depth analysis of the challenges faced by organizations in managing information security. They found that many companies do not adopt an integrated, holistic management approach, making it difficult for security professionals and managers to fully understand their organization's security posture. This fragmented approach, combined with limited budgets and staff, hinders the ability of security professionals to adequately address the security demands of their organizations.

Grobler&Louwrens emphasized the necessity for managers to assess the security posture of their organizations accurately to determine the effectiveness and efficiency of the security measures in place. However, their research revealed that many organizations lack proper guidelines for conducting forensic investigations following security incidents. This deficiency often leads to unproductive conclusions in investigations, as organizations do not prioritize forensic investigations, a view supported by Sinangin (2002). To address these issues, Grobler&Louwrens proposed the development of a digital forensic management model (DFMM). This model, they argued, is essential for conducting successful investigations. The aim of their paper was to use elements of existing information security architectures to propose a new architecture. This new architecture would encompass various dimensions of information security and serve as a framework for managing, implementing, and assessing an organization's security posture. Additionally, they posed the question of whether the DFMM should be integrated into the broader information security architecture, suggesting that such integration could enhance the overall effectiveness of security management within organizations.

Molnár (2016) investigated the impact of the Information Security Law (2013. L. law) in Hungary, a legislative measure accepted by the Hungarian Parliament after two decades of effort. This law lays the groundwork for enhancing information security within Public Administration, accompanied by decrees and resolutions that regulate the categorization and management of information systems in compliance with the required security levels. Molnár examined the execution of this law and identified several issues and problems that have arisen. These issues need to be addressed by the guardians of information security and the owners of information systems within various sectors of the Hungarian Public Administration. One major challenge is the categorization of these systems and the realization of control objectives, particularly for legacy systems. This challenge necessitates a systematic and disciplined methodology to manage the complexity effectively. To address these challenges, Molnár proposed the adaptation of Enterprise Architecture, specifically a customized version for Information Security Architecture. This approach provides a structured framework for managing information security. Additionally, security guardians in Hungary are trained in this methodology through courses offered by the Public Administration University in Budapest, ensuring they possess the necessary knowledge to implement the law effectively.

Al-Zaben et al. (2018) investigated the growing concerns surrounding surveillance and breaches of user privacy, which have raised questions about the current procedures for third-party data collection. They examined how massive amounts of Personally Identifiable Information (PII) are being exploited due to malpractice, identity theft, spamming, phishing, and cyber-espionage. The study noted the extensive flow of data from users to enterprises for data-driven market analysis and prediction, which makes it challenging to track the flow and authenticity of PII. To address these issues, Al-Zaben et al. proposed the use of Blockchain technology, described as an 'immutable' distributed ledger capable of effectively tracking the exchange, storage, and distribution of PII. However, they also considered the ongoing EU General Data Protection Regulation (GDPR), which demands the 'right to be forgotten' and the ability for data to be erased. To reconcile these requirements with the characteristics of Blockchain, the authors proposed an off-chain Blockchain architecture that combines both local databases and distributed ledgers to ensure a trustworthy PII lifecycle.

The study involved modifying existing Blockchain architectures to align with key GDPR factors and creating a prototype using Multichain 2.0 to validate the proposed architecture. This architecture stores PII and non-PII in physically separated locations, allowing users to benefit from the privacy and security of Blockchain technology while complying with GDPR regulations. The validation process included comparing the proposed system with existing methodologies from a technical perspective, and the study also discussed future research opportunities in this area.

Summary of Empirical Review and Knowledge Gap

S/N	Researcher (s)	Study Focus	Variables	Findings	Remarks: Knowledge Gap and Action
1	Grobler&Louwrens (2005)	Information security within organizational operations	Security policies, intrusion detection systems, access control mechanisms, anti-virus products	- Lack of integrated management approach. Challenges due to limited budgets and staff. Need for guidelines in forensic investigations	The study of Grober&Louwrens. (2005) centered on Information security within organizational operations. While this study focuses on infor-security architecture and infor-protection law of Commercial Banks in Rivers State. The current study dimensionalizesinfor-security architecture incidence responses and management, cryptography, and scalability; the study also measures infor-protection law in terms of personal data protection, data breach notification, and cross border data transfer. The study shows its outcome in terms of operational efficiency, and competitive advantage.

2	Molnár (2016)	Impact of Information Security Law (2013. L. law) in Hungary	Categorization of information systems, compliance with security levels	- Issues in law execution within Public Administration. Challenges in categorizing and controlling legacy systems	The study of Molnar (2016) centered on impact of information security law (2013. L. law) in Hungary. While this study focuses on infor-security architecture and infor-protection law of Commercial Banks in Rivers State. The current study dimensionalizesinfor-security architecture incidence responses and management, cryptography, and scalability; the study also measures infor-protection law in terms of personal data protection, data breach notification, and cross border data transfer. The study shows its outcome in terms of operational efficiency, and competitive advantage.
3	Al-Zaben et al. (2018)	Surveillance, privacy breaches, Blockchain technology in data protection	Personally Identifiable Information (PII), Blockchain architecture, GDPR compliance	- Exploitation of PII due to malpractice. Proposal of off-chain Blockchain architecture for PII lifecycle management	The study Al-Zaben et al. (2018) centered on surveillance, privacy breaches, Blockchain technology in data protection. While this study focuses on infor-security architecture and infor-protection law of Commercial Banks in Rivers State. The current study dimensionalizesinfor-security architecture incidence responses and management, cryptography, and scalability; the study also measures infor-protection law in terms of personal data protection, data breach notification, and cross border data transfer. The study shows its outcome in terms of operational efficiency, and competitive advantage.

Methodology

The study adopted explanatory survey research design. The population of the study consisted of Two Hundred and Thirty (230) top managers from twenty-three (23) Commercial Banks operating in Rivers State, Nigeria. Top Ten (10) managers were chosen from each bank. Census was adopted for the study, the entire population was employed as the sample size of the study. To obtain primary data, a structured questionnaire entitled “Infor- Security Architecture and Infor-protection law(ISAIPL)” was designed in five point Likert scale with the following response options: Very High Extent (VHE) 4; High Extent (HE) 3; Moderate Extent (ME) 2; Low Extent (LE) 1. The instrument was validated by two experts in Management. The reliability of the instrument was ascertained using Crombach Alpha with the least coefficient up to 0.763. Out of 230 copies of the questionnaire distributed, 220 copies of the questionnaires were retrieved, representing 83%. The data obtained from the field were analyzed using Spearman’s Rank Order Correlation Coefficient with the aid of SPSS 22.0 (Statistical Package for Social Sciences).

Decision Rule: Using a level of significance of 0.05 (confidence interval of 95%), when a calculated significant value is less than 0.05 the null hypothesis is rejected, if otherwise, the null hypothesis is accepted.

Results/findings

Ho_1: Infor- Security Architecture does not have any significant relationship with Operational Efficiency of Commercial Banks in Rivers State.

Table 1. Correlations between Infor-security architecture and operational efficiency

		Infor-security architecture	Operational efficiency
Infor-security architecture	Pearson Correlation	1	.737**
	Sig. (2-tailed)		.000
	N	220	220
Operational efficiency	Pearson Correlation	.737**	1
	Sig. (2-tailed)	.000	
	N	220	220

**. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS Output from Field Data (2024)

Table 1 above indicates that the hypothesis relating to Infor-security architecture and operational efficiency has an r-value of 0.737 at a significance level of 0.00, which is less than the selected alpha level of 0.05. The alternative hypothesis is accepted while the null hypothesis (Ho1), which claims that Infor-security architecture does not have any significant relationship with operational efficiency of Commercial Banks in Rivers State, is rejected because the significance value is less than the alpha level of 0.05. The correlation coefficient of 0.737 suggests that infor-security architecture and operational efficiency of commercial banks in Rivers State has a significant positive relationship.

Ho_2: Infor- Security Architecture does not have any significant relationship with competitive Advantage of Commercial Banks in Rivers State.

Table 2. Correlations between Infor-security architecture and competitive advantage

			Infor-security architecture	Competitive advantage
Spearman's rho	Infor-security architecture	Correlation Coefficient	1.000	.609**
		Sig. (2-tailed)	.	.000
		N	220	220
	Competitive advantage	Correlation Coefficient	.609**	1.000
		Sig. (2-tailed)	.000	.
		N	220	220

**. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS Output from Field Data (2024)

Table 2 above indicates that the hypothesis relating to Infor-security architecture and competitive advantage has an r-value of 0.609 at a significance level of 0.00, which is less than the selected alpha level of 0.05. The alternative hypothesis is accepted while the null hypothesis (Ho2), which claims that infor-security architecturedoes not have any significant relationship with competitive advantage of Commercial Banks in Rivers State, is rejected because the significance value is less than the alpha level of 0.05. The correlation coefficient of 0.609 suggests that infor-security architecture and competitive advantage of commercial banks in Rivers Statehas a significant positive relationship.

Ho_3: Infor- Protection Law does not have any significant relationship with Operational Efficiencyof Commercial Banks in Rivers State.

Table3. Correlations between infor-protection law and operational efficiency

			Infor-protection law	Operational efficiency
Spearman's rho	Infor-protection law	Correlation Coefficient	1.000	.519**
		Sig. (2-tailed)	.	.000
		N	220	220
	Operational efficiency	Correlation Coefficient	.519**	1.000
		Sig. (2-tailed)	.000	.
		N	220	220

**. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS Output from Field Data (2024)

Table 3 above indicates that the hypothesis relating to infor-protection law and operational efficiency has an r-value of 0.519 at a significance level of 0.00, which is less than the selected alpha level of 0.05. The alternative hypothesis is accepted while the null hypothesis (Ho3), which claims that infor-protection law does not have any significant relationship with operational efficiency of Commercial Banks in Rivers State, is rejected because the significance value is less than the alpha level of 0.05. The correlation coefficient of 0.519 suggests that infor-protection law and operational efficiency of commercial banks in Rivers Statehas a moderate positive relationship.

Ho_4: Infor- Protection Law does not have any significant relationship with competitive advantage of Commercial Banks in Rivers State.

Table3. Correlations between infor-protection law and competitive advantage

			Infor-protection law	Competitive advantage
Spearman's rho	Infor-protection law	Correlation Coefficient	1.000	.408**
		Sig. (2-tailed)	.	.000
		N	220	220
	Competitive advantage	Correlation Coefficient	.408**	1.000
		Sig. (2-tailed)	.000	.
		N	220	220

**. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS Output from Field Data (2024)

Table 4 above indicates that the hypothesis relating to infor-protection law and competitive advantage has an r-value of 0.408 at a significance level of 0.00, which is less than the selected alpha level of 0.05. The alternative hypothesis is accepted while the null hypothesis (Ho4), which claims that infor-protection law does not have any significant relationship with competitive advantage of Commercial Banks in Rivers State, is rejected because the significance value is less than the alpha level of 0.05. The correlation coefficient of 0.408 suggests that infor-protection law and competitive advantage of commercial banks in Rivers Statehas a moderate positive relationship.

Discussion:

Ho_1: Infor- Security Architecture and Operational Efficiency

Result reveals that there is significant correlation between Infor-security architecture and operational efficiency of Commercial Banks. With a correlation value of 0.737, the result reveals that infor-securityarchitecture has a significant positive relationship with operational efficiency of Commercial Banks in Rivers State. Similarly, this finding was supported by **Grobler&Louwrens (2005) whose findings** emphasis on integrated security management and the need for holistic approaches to security align with the significant relationship between Infor- Security Architecture and Operational Efficiency.

Ho_2: Infor- Security Architecture and competitive Advantage

Result reveals that there is significant correlation between Infor- Security Architecture and competitive Advantageof Commercial Banks. With a correlation value of 0.609, the result reveals that Infor-security architecture has a significant positive relationship with competitive advantage of Commercial Banks in Rivers State. Similarly, this finding was supported by **Al-Zaben et al. (2018)** their focus on Blockchain technology for secure data management aligns with the findings on Infor- Security Architecture and competitive Advantage.

$H0_3$: Infor- Protection Law and Operational Efficiency

Result reveals that there is significant correlation between Infor- Protection Law and Operational Efficiencyof Commercial Banks. With a correlation value of 0.519, the result reveals that infor-protection law has a moderate positive relationship with operational efficiency of Commercial Banks in Rivers State. Similarly, this finding was supported by **Molnár (2016)** the findings pointed on the structured framework for managing information security aligns with the findings on Infor- Protection Law and Operational Efficiency.

$H0_4$: Infor-Protection Law and Competitive Advantage

Result reveals that there is significant correlation between Infor- Protection Law and competitive advantage of Commercial Banks. With a correlation value of 0.408, the result reveals that infor-protection law has a moderate positive relationship with competitive advantage of Commercial Banks in Rivers State. Similarly, this finding was supported by **Molnár (2016)** the findings pointed on the structured framework for managing information security aligns with the findings on Infor- Protection Law and competitive advantage.

Conclusion

The digitalization of the information security posture in commercial banks in Rivers State is essential for enhancing operational efficiency and gaining a competitive advantage. This study has comprehensively analyzed key components of information security architecture, including incident response and management, cryptography, and scalability. Additionally, it has examined crucial aspects of information protection law, such as personal data protection, data breach notification, and cross-border data transfer. The findings underscore the critical importance of a robust information security architecture in safeguarding sensitive data and ensuring the resilience of banking operations. Effective incident response and management protocols are vital for mitigating the impact of security breaches, while advanced cryptographic measures ensure the confidentiality and integrity of data.

Scalability within security systems allows banks to adapt to evolving threats and growing data volumes without compromising security.

Furthermore, adherence to information protection laws enhances customer trust and ensures compliance with regulatory requirements. Personal data protection measures safeguard customer information, data breach notifications ensure transparency, and regulations governing cross-border data transfers maintain data security in an increasingly globalized environment. Overall, the digitalization of information security in commercial banks not only fortifies their defenses against cyber threats but also drives operational efficiencies and fosters a competitive edge. By prioritizing information security, these banks can build a resilient infrastructure that supports sustainable growth, regulatory compliance, and enhanced customer confidence.

Recommendations

- Banks should develop and regularly update incident response plans that detail specific steps for identifying, mitigating, and recovering from security incidents.
- Banks should employ state-of-the-art encryption techniques to protect sensitive data both in transit and at rest.
- Banks should implement security systems that can scale with the growth of data and the evolving threat landscape without compromising performance.
- Banks should establish protocols for promptly notifying affected individuals and relevant authorities in the event of a data breach, as required by law.
- Banks should implement measures to ensure the security of data transferred across borders, in compliance with international data protection standards.

REFERENCE

Abdulkadir, A. B., &Sambo, A. O. (2022). Data privacy rights and bankers' business interests in Nigeria: Reflections on opportunities, challenges and legal reforms. *Malaysian Journal of Law & Society*, *30*.

Abrahams, T. O., Ewuga, S. K., Kaggwa, S., Uwaoma, P. U., Hassan, A. O., &Dawodu, S. O. (2024). Mastering compliance: A comprehensive review of regulatory frameworks in accounting and cybersecurity. *Computer Science & IT Research Journal*, *5*(1), 120-140.

Adeyemo, K., &Obafemi, F. J. (2024). A survey on the role of technological innovation in Nigerian deposit money bank fraud prevention. *South Asian Journal of Social Studies and Economics*, *21*(3), 133-150.

Ajufo, G., &Qutieshat, A. (2023). An examination of the human factors in cybersecurity: Future direction for Nigerian banks. *Indonesian Journal of Information Systems*, *6*(1), 1-16.

Alemami, Y., Mohamed, M. A., &Atiewi, S. (2019). Research on various cryptography techniques. *International Journal of Recent Technology and Engineering (IJRTE)*, *8*(2S3), 395-405.

Al-Zaben, N., Onik, M. M. H., Yang, J., Lee, N. Y., & Kim, C. S. (2018, August). General data protection regulation complied blockchain architecture for personally identifiable information management. In *2018 International Conference on Computing, Electronics & Communications Engineering (iCCECE)* (pp. 77-82). IEEE.

Anifalaje, K. (2024). A legal approach to the protection of customers of banks and other financial institutions from identity theft in Nigeria. *Northern Ireland Legal Quarterly*, *75*(AD1), 1-28.

Ashraf, M., & Sunder, J. (2023). Can shareholders benefit from consumer protection disclosure mandates? Evidence from data breach disclosure laws. *The Accounting Review*, *98*(4), 1-32.

Bellver, A., Mendiburu, M., &Poli, M. (2008). Strengthening transparency and accountability through Access to Information.

Butcovan, M. A., & Ivan, R. (2023). Policies and strategies aimed at ensuring the security of banking institutions and their It Systems. *Agora International Journal of Economical Sciences*, *17*(2), 27-33.

Crisanto, J. C., &Prenio, J. (2021). Emerging prudential approaches to enhance banks' cyber resilience. *The Palgrave Handbook of FinTech and Blockchain*, 285-306.

Dopamu, O., Adesiyan, J., &Oke, F. (2024). Artificial intelligence and US financial institutions: Review of AI-assisted regulatory compliance for cybersecurity. *World Journal of Advanced Research and Reviews. Available at: https://wjarr. com/content/artificial-intelligence-and-us-financial-institutions-review-ai-assistedregulatory (Accessed: 28 May 2024)*.

Drugã, R. I. (2024). The effect of trust in banking institutions on behavioural intentions for e-services. *Three Seas Economic Journal*, *5*(1), 1-12.

Ewuga, S. K., Egieya, Z. E., Omotosho, A., &Adegbite, A. O. (2023). ISO 27001 in banking: An evaluation of its implementation and effectiveness in enhancing information security. *Finance & Accounting Research Journal*, *5*(12), 405-425.

Farayola, O. A. (2024). Revolutionizing banking security: integrating artificial intelligence, blockchain, and business intelligence for enhanced cybersecurity. *Finance & Accounting Research Journal*, *6*(4), 501-514.

Grobler, T., &Louwrens, B. (2005, June). New information security architecture. In *ISSA 2005 New Knowledge Today Conference. Information Security South Africa*.

Guerra, P. A. C., Barcelos, F. A., Nunes, R. C., De Freitas, E. P., & Silva, L. A. D. L. (2023, October). An artificial intelligence framework for the representation and reuse of cybersecurity incident resolution knowledge. In *proceedings of the 12th Latin-American symposium on dependable and secure computing* (pp. 136-145).

Gulyamov, S., &Raimberdiyev, S. (2023). Personal data protection as a tool to fight cyber corruption. *International Journal of Law and Policy*, *1*(7).

Haliwela, N. S. (2023). The essence of legal protection of personal data of customers in banking transactions. *SASI*, *29*(3), 548-556.

Haryandu, R., Azheri, B., & Rembrandt, R. (2023). Legal protection of customer data in implementing the financial information access law for tax purposes. *GemaWiralodra*, *14*(2), 912-920.

Igwenagu, U. T. I., Salami, A. A., Arigbabu, A. S., Mesode, C. E., Oladoyinbo, T. O., &Olaniyi, O. O. (2024). Securing the digital frontier: Strategies for cloud computing security, database protection, and comprehensive penetration testing. *Journal of Engineering Research and Reports*, *26*(6), 60-75.

Ikram, N. A. H. S. (2024). Data breaches exit strategy: a comparative analysis of data privacy laws. *Malaysian Journal of Syariah and Law*, *12*(1), 135-147.

Izuogu, C. E. (2021). Conducting data protection impact assessments for online profiling under the NDPR 2019. *Protecting digital consumers, assets, identity, privacy and data in a digital economy: The Nigerian experience*.

Jangampeta, S. (2022). Financial data security and SIEM: Protecting sensitive financial information in banking and fintech systems. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, *13*(2), 1185-1188.

Khuan, H. (2024). The legal protection of personal data in fintech peer-to-peer (p2p) lending practices: Orientation and formulation. *Pena Justisia: Media KomunikasidanKajianHukum*, *22*(3), 433-466.

Køien, G. M. (2020). A philosophy of security architecture design. *Wireless personal communications*, *113*(3), 1615-1639. Køien, G. M. (2020). A philosophy of security architecture design. *Wireless Personal Communications*, *113*(3), 1615-1639.

Lu, X., Dong, R., Wang, Q., & Zhang, L. (2023). Information security architecture design for cyber-physical integration system of air traffic management. *Electronics*, *12*(7), 1665.

Madsen, T. (2022). *Security architecture–how & why*. River publishers.

Manganaris, P., Beccalli, E., &Dimitropoulos, P. (2017). Bank transparency and the crisis. *The British accounting review*, *49*(2), 121-137.

Molnár, B. (2016). IT security in Hungarian public administration, Models of information security architecture in practice. *AssociazioneItaliana per l'informaticaedilCalcoloAutomatico, AICA, IT Star, Milan, Italy*, 28-44.

Mpekoa, N. (2024, March). An analysis of cybersecurity architectures. In *international conference on cyber warfare and security* (Vol. 19, No. 1, pp. 200-207).

Mwita, P. S., &Mhina, J. R. A. (2023). Assessing the effectiveness of the implementation of cybercrimes mitigation strategies in selected commercial banks in Tanzania. *European Journal of Theoretical and Applied Sciences*, *1*(6), 571-583.

Odeyemi, O., Okoye, C. C., Ofodile, O. C., Adeoye, O. B., Addy, W. A., &Ajayi-Nifise, A. O. (2024). Integrating AI with blockchain for enhanced financial services security. *Finance & Accounting Research Journal*, *6*(3), 271-287.

Ofodile, O. C., Odeyemi, O., Okoye, C. C., Addy, W. A., Oyewole, A. T., Adeoye, O. B., &Ololade, Y. J. (2024). Digital banking regulations: a comparative review between Nigeria and the USA. *Finance & Accounting Research Journal*, *6*(3), 347-371.

Olawale, O., Ajayi, F. A., Udeh, C. A., &Odejide, O. A. (2024). RegTech innovations streamlining compliance, reducing costs in the financial sector. *GSC Advanced Research and Reviews*, *19*(1), 114-131.

Onyshchenko, S., Zhyvylo, Y., Cherviak, A., &Bilko, S. (2023). Determining the patterns of using information protection systems at financial institutions in order to improve the level of financial security. *Eastern-European Journal of Enterprise Technologies*, *125*(13).

Oyewole, A. T., Okoye, C. C., Ofodile, O. C., &Ugochukwu, C. E. (2024). Cybersecurity risks in online banking: A detailed review and preventive strategies applicatio. *World Journal of Advanced Research and Reviews*, *21*(3), 625-643.

Sari, S. R., Resmawan, R., Yahya, N. I., &Yahya, L. (2024). Implementation of cryptography using the RSA (Rivest-Shamir-Adleman) algorithm in encoding text messages and documents. *JOSTECH Journal of Science and Technology*, *4*(1), 97-107.

Sarumi, J. A., &Omotosho, O. M. A (2022). Review of network security strategies employed by the Nigerian banking sector (Case Study of Access Bank PLC, Bariga, Lagos, Nigeria).

Serrano, Manuel A., Luis E. Sánchez, Antonio Santos-Olmo, David García-Rosado, Carlos Blanco, Vita Santa Barletta, DaniloCaivano, and Eduardo Fernández-Medina. "Minimizing incident response time in real-world scenarios using quantum computing." *Software Quality Journal* 32, no. 1 (2024): 163-192.

Soesanto, E., Ningsih, N. A., Khoerunisa, L., &Faturrahman, M. I. (2023). Information data security in the use of information technology at PT Bank Central Asia (BCA). Student Research Journal, 1(3), 227-238.

Swanzy, P. N., Abukari, A. M., &Ansong, E. D. (2024). Data security framework for protecting data in transit and data at rest in the cloud. *Current Journal of Applied Science and Technology*, *43*(6), 61-77.

Tøndel, I. A., &Brataas, G. (2022, June). SecureScale: Exploring synergies between security and scalability in software development and operation. In *Proceedings of the 2022 European Interdisciplinary Cybersecurity Conference* (pp. 36-41).

Zou, Y., Danino, S., Sun, K., &Schaub, F. (2019, May). You might' be affected: An empirical analysis of readability and usability issues in data breach notifications. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems* (pp. 1-14).

COMPUTER-MEDIATED COMMUNICATION AND PERFORMANCE OF TELECOMMUNICATION COMPANIES IN RIVERS STATE, NIGERIA.

Orokor, Florence Abuoma (Ph.D)
Department of Office and Information Management, Faculty of Management Science
Ignatius Ajuru University of Education, Port Harcourt, Rivers State, Nigeria
florenceorokor@gmail.com;
07037241521

ABSTRACT

Communication in today's organization plays an important role in overall organizational performance. This study investigated the extent to which computer-mediated communication has allowed individuals to interact through electronics rather than face-to-face. Every organization wants to improve its efficiency in order to survive and complete favorably. This study examined the relationship between computer-mediated communication and organizational performance. The objective of this study was to examine how dimensions of computer-mediated communication such as social media usage, cloud computing usage, and virtual meeting influence the measures of organizational performance. Research questions were raised and three (3) hypotheses were employed for the study. The study adopted a cross-sectional survey research design. The study population comprised nine hundred and six (906) staff of the four (4) quoted telecommunication companies, Rivers State chapter, Nigeria; and the sample size for the study was two hundred and seventy seven (277) employees of the telecommunication companies which was determined using the Taro Yamane formula. Primary and secondary data was collected from participants with the help of a structured, pretested questionnaire. Quantitative data was analyzed using descriptive and inferential statistical method using Statistical Package for Social Sciences (SPSS) computer software version 23.0 and presented in textual forms and tables. Spearman's Rank Order Correlation Coefficient was computed to test the hypotheses. Findings reveal that if computer-mediated communication tools are adopted and embraced in the organization it will enhance performance. The study concluded that computer-mediated communication positively performance of telecommunication companies in Rivers State. Consequently, the study recommended that management should invest resources more on computer-mediated communication tools such as social media platform usage, cloud computing usage and virtual meeting in order to compete favorably with its rivals and remain relevant in the green environment today. The study contributed to knowledge by providing a better understanding of the dynamics of computer-mediated communication that drives telecommunication firms. Further research should examine the relationship between computer-mediated communication and organizational performance in another geographical location.

Keywords: Computer-Mediated Communication, Social Media Platform Usage, Cloud Computing Usage, Virtual Meeting, and Organizational Performance.

INTRODUCTION

Firm performance has continuously attracted scholars and experts' attention, especially scholars in the area of management and operations/production management. It is seen as a means through which the growth and profitability of the firm is achieved (Gavrea, et al., 2011). In today's business organizations, performance cannot be overlooked because it is the benchmark on which organizations measure their level of competitiveness in comparison to their contemporaries (Olusanya, et al., 2012).

Computer-mediated communication is a key factor in the success of 21st century business organizations, as noted by Culnan, et al. (2010), computer-mediated communication has the prospect of enhancing the value of business organizations by supporting the formation of computer-based customer circles that can encourage product branding, greater sales, better customer experience, and lead to a new product development.

According to Lam et al., (2016), organizations' computer-mediated communication usage might speed up information dissemination and knowledge acquisition and distribution within and outside the organization, it also enhances the relationship with customers, suppliers, and improve other external collaborations. Computer Mediated Communication is (CMC) ''Communication that takes place between human being via the instrumentality of computer "(Ashley, 2012).

Global economic processes have generated the need for organizational information including improved communication, flexibility, innovation and organizational performance. Organizational performance simply a measure to assess the efficiency and effectiveness of an organization that pursues its goal (Al-Ti, 2016). This work measures organizational performance in terms of strategic market performance and productivity performance.

Strategic market performance is the subjective measure of how well organizations can use sets of determinations that guides or directs the managers such as customer satisfaction, customer retention and brand awareness to reach their desired goal (Lages, 2000). Productivity performance can be seen as a measure of performance that encompasses both service delivery and service quality.

The importance of computer-mediated communication in influencing strategic market performance and productivity performance cannot be overemphasized. Research has demonstrated that innovations at workplace can improve customer satisfaction, customer retention, brand awareness, service delivery and service quality. Computer-mediated communication in the recent years has consistently placed on high as an important tool for boosting organizational performance. This is why companies pay more attention on the relevance computer-mediated communication tools in the organization which includes social media platform usage, cloud computing and virtual meeting. It is noteworthy to emphasize that one of the most impeding forces to customer satisfaction in organizations is the absence of effective communication tool. According to Caruso (2016) using social media platform to track the activities of competitors and analyzing the result to use in business helps to upgrade business plans which in turns leads to higher performance. The research by Armbrust et al. (2010) shows that another communication tool that influencesorganizational performance is cloud computing which improves organizational security level compared to premise-based electronic storage system. Again, virtual meeting makes the organization less vulnerable to unexpected events or catastrophes, thereby keeping up business continuity.

Many studies have been conducted within and outside Nigeria on computer-mediated communication, workplace virtualization, and e-communication in different services, banking sector, tourism and hospitality industry, education sectors etc. Sampson (2013) in a study ''Information and communication technology and administrative effectiveness of Nigerian Universities'' found that for organizations to boost their administrative effectiveness information and communication technology must be embraced. Shahzad et al. (2012) examines the role of ''organizational culture on organizational performance'' findings reveal that managers with effective organizational culture may improve performance in the organization, as this is as a result of employees sharing the organization's value.

Related, previous studies have considered computer-mediated communication on work productivity in Trinidas and Tabago; impact of computer-mediated communication on productivity and efficiency in organizations: A case study of electrical company, assessing the impact of information technology on employee job performance in the banking industry. However, none of these studies showed how computer-mediated communication relates with organizational performance in telecommunication companies in Nigeria. This is the knowledge gap, which this study seeks to fill. This gives credence to this study.

Statement of Problem

The increasing broad range of computer-mediated communication and globalization has made it possible to connect with people across the globe. This technology has also made it possible for businesses to communicate on an intercontinental level. In spite of this, the pace at which many telecommunication organizations in Rivers State are going, computer-mediated in communication still appears to be very low (Odu, 2019; Opara and Odu, 2020). Irrespective of organizations to be littered with gadgets, only few organizations have been able to carry out their communication via computer-mediated (Odu, 2019; Opara and Odu, 2020). This may be due to poor awareness on off- premise based communication.

Despite the strategic role of the telecommunication sector in economic development, it has failed to achieve its full potential (Sylva & Akpan, 2016). Oyedijo (2012) observed that though the telecommunication firms have introduced a lot of improvement through innovative services such as electronic transfer of airtime and data, and other internet-based services. Some of the firms are still found to have information dissemination, service and product awareness, and poor service quality. Customers still complain about the number of drop calls, unsolicited messages, poor attitude of customer service personnel, network congestion and interruptions during calls (Sylva & Akpan, 2016). These deficiencies have led to the fluctuating performance of the sector. Although usage of computer-mediated communication tool such as social media platform to connect with customers seems is inevitable, scholars and practitioners have continued to question the viability of computer mediated communication investments and its influence on firm performance in terms of leading to increasing the market strategy, productivity and profitability.

Aim and Objectives of the Study

Sequel to the statement of our research problem, the focal point of this study was to investigate the relationship that exists between computer-mediated communication and organizational performance in telecommunication companies in Rivers State. In line with the conceptual framework specifically, the objectives was to:

1) Examine the relationship between social media usage and organizational performance of telecommunication companies in Rivers State.
2) Examine the relationship between cloud computing and organizational performance of telecommunication companies in Rivers State.
3) Examine the relationship between virtual meeting and organizational performance of telecommunication companies in Rivers State.

1.5 Research Questions

In order to deeply understand the objective of the study, the following research questions were examined:

1) What is the relationship between social media usage and organizational performance of telecommunication companies in Rivers State?
2) What is the relationship between cloud computing usage and organizational performance of telecommunication companies in Rivers State?
3) What is the relationship between virtual meeting and organisational performance of telecommunication companies in Rivers State?

1.6 Hypotheses

The following null hypotheses was tested at 0.05 level of significance in the study:

Ho_1: Social media usage does not significantly relate to performance in the telecommunication companies in Rivers State.

Ho_2: Cloud computing usage does not significantly relate to performance in the telecommunication companies in Rivers State.

Ho_3: Virtual meeting usage does not significantly relate to performance in the telecommunication companies in Rivers State.

Literature Review

Concept of Computer-Mediated Communication (CMC)

Computer-mediated communication (CMC) is a generic term now commonly used for a variety of systems that enables people to communicate with other people y means of computers and networks. A working definition of computer-mediated communication is ''communication between different parties separated in space and/time, mediated by interconnected computers (Kaplan & Haelein, 2010). Computer-mediated communication is a communication that takes place between human beings via the instrumentality of computers. CMC has the ability to gather information and connect on an intercontinental level, a concept more specifically referred to as globalization.

Socio Media Platform Usage

Social media is a platform that facilitated information sharing and participation from users of the media in order to create and/or distribute the content (Steenkamp & Hyde-Clarke, 2014). Likewise, Kaplan and Haenkein (2010) define social media as ''a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and allow the creation and exchange of User Generated Content''. They separated social media into different categories such as social networking sites (e.g. Facebook, Google+), microblogs (e.g Twitter, instagram), collaborative project (including Wikipedia), content communities (such as, You Tube), virtual games worlds (including World of Warcraft), virtual social worlds (e.g Second Life).

Likewise, Culnan, et al., (2010) propose that social media provides organizations with several business opportunities by helping them to build internet based customer communities through sales is enhanced, customer service satisfaction is guaranteed, and innovative ways of developing a new product are generated, all these add up to develop and sustain the brand. To leverage the numerous opportunities inherent in the usage of social media, telecommunication firms are now vigorously adopting social media platforms (such as Facebook, Twitter, and WhatsApp) in relating with actual and potential customers (Ling, 2013). Currently, almost all the telecommunication firms in the country have a Facebook page. For example MTN Nigeria has over 4 million followers/likes, while GLO has over 1.3 million likes to its Facebook page.

According to Parveen et al., (2015) there are several social media usages. These include ''Information sharing and search, branding and advertising, conducting market research, reaching new customers, getting referrals, developing customer relations, communicating with customers, customer service activities and receiving customer feedback''. However, two of these initiatives which ranked highest on the reason of using social media was adopted as social media initiatives for this study. These are; the usage of social media for advertising and promotion, and for customer service activities.

Cloud Computing Usage

The term ''cloud'' is derived from the idea where users are able to access applications from anywhere in the world on demand. Cloud is a shared resource that is extremely effective because it is not only shared by large number of users, but also can be dynamically accessed depending on the demand (Wikipedia, 2015). Cloud computing is internet based where shared resources; software and information are provided to computers and others devices on-demand.

Generally, cloud computing is the combination of traditional computing methods and networking technologies such as distributed computing, parallel computing, utility computing, network storage technologies, virtualization, load balance, high available etc. (U. S. Department of Commerce, 2011). Cloud computing is a general term used to describe a new class of network based computing that takes place over the internet. Cloud computing is basically a step on from utility computing. It is a collection/group of integrated and networked hardware, software and internet infrastructure (called a platform), using the internet for communication and transport provides hardware, software and networking services to clients.

The benefit of this is that these platforms hide complexity and details of the underlying infrastructure from users and applications by providing very simple graphical interface or API (Applications Programming Interface). The cloud is used as a storage location and database can be accessed and computed from anywhere. The large number of web application makes the use of distributed storage solution in order to scale up.

Virtual Meeting

Virtual meeting refers to the use of internet-mediated technologies in holding workplace meetings, presentation, content sharing, chats and multiple participants' calls in real time with participants in dispersed geographical location. Bunekemeifa (2019) describe virtual meeting as a system that enables people to meet and have real time interactions virtually involving features such as audio and video, chat tools and application sharing. Instead of sponsoring managers and representatives from different branches or regions, digital organization procure virtual conferencing services. With a functional transmission control protocol//internet protocol connections, participants can connect to conference using personal computer system, telephone, and/or computer's speaker and microphone (Rouse, 2020).

Zoom, skype, Google meet, slack, Google Hangout are examples of virtual platforms organizations are leveraging on today.

The word 'virtual' simply refers to existing or occurring on computers or on the internet. Virtual meeting is a meeting conducted over the internet entirely through computers and/or other electronic means and with no physical convergence of parties. As the world becomes more interconnected by virtue of the internet, meetings and other activities take place increasingly in this virtual space. Virtual workplace creates connections and removes barriers between people, information, and processes. When the barriers are broken, workers do their jobs more effectively and efficiently, and make the business more agile and competitive (Igloo, 2017).

Concept of Organizational Performance

Performance according to (Armstrong & Taylor, 2014) is the result of three determinants: 1) knowledge of facts and facts (called declarative knowledge); 2) Knowledge of how everything is done and skills to do it (Called procedural knowledge and skills), and 3) Motivation to act, to spend effort and to survive (called motivation). For this reason, knowledge plays an important role in organizational performance. Besides, according to (Anggadiota & Mustafid (2014), several factors affect the organizations performance, namely entrepreneurship, human resource competence, innovation, and sustainability. The result is expected to contribute to organization to maintain and improve their performance. The opinion illustrates that knowledge which is part of human resource competence plays an important role in achieving company performance. ''The success of a company is more directed at it's ability related to knowledge and learning than it's physical assets.'' (Torabi et al., 2016). Therefore, people will hope that for companies to successful, they must exploit methodically their knowledge assets (Bolisani & Bratianu, 2017).

Diffusion of Innovation Theory by Roger (1962)

Diffusion of innovation theory is a theory developed by Rogers in 1962. Rogers' Diffusion of innovation theory explains the processes involved in the adoption of innovations such as new technologies, techniques and procedures and as well as the resultant effects of such steps on organizational processes (Rogers's 1962 in Ikemefuna, 2016; Ahiauzu & Soye, 2016).

The diffusion of innovation theory assumes that:

i. In a social system, there will always be a disparity in the level and time at which individuals in a given system adopt new ideas, techniques and technology.

ii. Individuals and arms of institutions that adopt innovation early will naturally outperform late adopters and laggards (Rogers' 1962 as cited in Ayodele, 2012; Onigbinde and Ojo, 2016).

Thus, the theory was succinctly adopted as the theoretical underpinning of this study because it is related to the predictor variable of the study (Computer-mediated communication).

The theory predicts that organizations that adopt innovations such as information technologies on time will experience better organizational performance than those who stick to traditional systems of operations.

Goal Setting Theory of Motivation by Edwin (1960)

Goal setting of motivation is a theory developed by Edwin in 1960. It is a theory concerned with how employees are motivated by clear, well defined goals.

The goal setting theory of motivation assumes that:

i. Goals should be realistic and challenging, this gives an individual a feeling of pride and triumph when he attain them, set him up for attainment of the next goal. The more challenging the goal, the greater is the reward generally and the more is the passion for achieving it.

ii. Goals should be specific and clear as this lead to greater output and better performance. Unambiguous measurable and clear goals accompanied by a deadline for completion avoids misunderstanding (Edwin, 1960 as cited in Lunenburg, 2011).

This theory was succinctly adopted also as the theoretical underpinning of this study because it is related to the criterion variable (Organizational performance). The theory predicts that firms that are specific and clear in their goals tend to be more efficient than those that do not. This theory simply means that organizations that are specific and clear in their goals tends to naturally experience higher output and higher performance.

Empirical Review

In a study by Bob and Sooknanan (2014) on ''the impact of computer mediated communication (CMC) on productivity and efficiency in organizations: A case study of an electrical company in Trinidad and Tobago. The study adopted a cross sectional survey design. In their study it was revealed CMC enhanced their overall productivity and efficiency. However, while the findings revealed that the introduction of CMC increased its use as a whole, it impacted negatively on interpersonal relationship among respondents.

In a study conducted by Matthew and Wali (2021) on ''Workplace virtual meetings in Nigeria: Issues, challenges and prospects''. Using a qualitative survey method. Findings indicates that practice of holding formal meetings using online platform and social media platforms rather than gathering in a given geographical location as the transition from the conventional to virtual method signals a positive improvement for organizations.

In a study conducted by Opara-Martins (2021) on ''Assessing the impact of information technology on employee job performance in the banking industry''. The study employed survey of literature and qualitative content analysis and findings reveal that technology innovation has influenced customers satisfactions. ICT has increased bank return on equity and profitability.

Research Design

This study adopted the cross- sectional survey method in its assessment of the relationship between computer-communication and organizational performance. The design is suitable for this study because an independent variable causes change in a dependent variable. The design is also concerned with the descriptions of phenomena or characteristics such as who, what, when, where of a subject population. In addition, the cross-sectional survey adopted is suitable because variables are outside the control and manipulation of the researcher.

Population of the Study

The population of the study is made up of nine hundred and six (906) staff (middle level managers, and team leaders) across the four (4) telecommunication companies in Rivers State. Below is the population distribution table.

Table 1: Population Distribution

S/N	Target Audience	Number	Percentage (%)
1.	MTN	294	32
2.	AIRTEL	235	26
3.	GLOBACOM	186	21
4.	9-Mobile	188	21
	Total	**906**	**100**

Source: HR Departments of the Firms (Field Work)

Sample/Sampling Technique

Considering the size of the population distribution, a sample size of 277 was determined from the total population using the Taro Yamane's formula. In terms of respondents, staff such as middle level managers, and team leaders were selected to elicit response on behalf of their companies.

Validity of Instrument

The study adopted face and content validity. The instrument was given to four lecturers in the Department of Office and Information Management, Ignatius Ajuru University of Education, for vetting. Their comments served as a guide in making necessary corrections on the instrument. However, after effecting the corrections, the instrument was submitted back and confirmed to be valid.

Reliability of Instrument

The reliability of the instrument was determined using test-retest. In doing this, the questionnaire (Computer-Mediated Communication and Organizational Performance Questionnaire CMCOP) was administered to 40 respondents outside the study area. After a period of two weeks, the questionnaire was re-administered to the same set of respondents. The data collected on the two tests was correlated using Cronbach Alpha Technique. Ahiauzu and Asawo, (2016), have also reiterated that Cronbach Alpha is a good reliability coefficient that indicates how well items in a questionnaire set are positively correlated to one another. A Cronbach Alpha reliability coefficient was used to measure the extent to which the instrument is reliable. The result indicates that all the variables of the study have reliability coefficients that are above the recommended threshold of 0.70.This was facilitated with the use of Statistical Package for Social Science (SPSS) version 23.0 as depicted below.

Table 2 Reliability of Coefficients

Variables	Construct	No. of Items	Alpha (á)
Computer-Mediated Communication	Social Media Usage	5	0.754
	Cloud Computing Usage	5	0.798
	Virtual Meeting	5	0.776
Organizational Performance		5	0.811

Source: *SPSS Output version 23.0*

Administration of Instrument

A total of two hundred and seventy seven (277) copies of questionnaire were administered to the respondents by hand with the help of research assistants in their respective organizations within the target organizations out of which two hundred and seventy three (273) was successfully retrieved. The research assistants were briefed on what they were expected to do before proceeding to administer the questionnaire to the various telecommunication firms adopted for this study. Method of ''drop and pick later'' was used. This exercise was designated for three weeks.

Methods of Data Analysis

Data analysis is an application of reasoning to understand, clear and interpret the data or information that has been collected through the questionnaire (Zikmund, 2003). Therefore the data collected from staff (middle level managers and team leaders) of telecommunication companies was analyzed with the aid of the Statistical Package for Social Sciences (SPSS version 23.0). Statistical tools like tables, bar chart and pie chart was used to present the data from the SPSS results. Spearman's rank correlation coefficient was used to test the null hypotheses while partial correlation was used to ascertain the interaction of the moderating variables.

If the statistical analysis shows that the significance level is below the cut-off that is set (which is 0.05), the null hypotheses will be rejected and alternate hypotheses accepted. Alternatively, if the significance level is above the cut-off value, the null hypotheses is accepted.

Table 3: Summary of Spearman's rho on the relationship between social media platform usage and performance in the telecommunication companies in Rivers State.

Correlations

Variables			Social Media Usage	Organizational Performance
Spearman's rho	Social Media Usage	Correlation Coefficient	1.000	.361
		Sig. (2-tailed)	.	.002
		N	273	273
	Organizational Performance	Correlation Coefficient	.361	1.000
		Sig. (2-tailed)	.002	.
		N	273	273

Correlation is significant at the 0.05 level (2-tailed).

The result on table 3 showed the Summary of Spearman's rho on the relationship between social media usage and performance in the telecommunication companies in Rivers State**.** It shows that the social media usage **has a positive and strong relationship with** performance in the telecommunication companies in Rivers State (r=.361). The p-value of .002 shows that Social media usage does significantly relate to performance in the telecommunication companies in Rivers State (r=.361, p<.05). The null hypothesis one was rejected at 0.05 alpha level.

H_{02}: Cloud computing usage does not significantly relate to performance in the telecommunication companies in Rivers State.

Table 4 : Summary of Spearman's rho on the relationship between cloud computing and performance in the telecommunication companies in Rivers State.

Correlations

	Variables		Cloud Computing Usage	Organizational Performance
Spearman's rho	Cloud Computing Usage	Correlation Coefficient	1.000	.659**
		Sig. (2-tailed)	.	.000
		N	273	273
	Organizational Performance	Correlation Coefficient	.659**	1.000
		Sig. (2-tailed)	.000	.
		N	273	273

***. Correlation is significant at the 0.01 level (2-tailed).*

The result on table 4 showed the summary of Spearman's rho on the relationship between **cloud computing usage and** strategic market performance in the telecommunication companies in Rivers State**.** It shows that the cloud computing usage **has a positive and strong relationship with** strategic market performance in the telecommunication companies in Rivers State (r=.659). The p-value of .000 shows that cloud computing usage does relate to strategic market performance in the telecommunication companies in Rivers State (r=.659, p<.05). The null hypothesis three was rejected at 0.05 alpha level.

H_{03}: Virtual meeting does not significantly relate with organizational performance in the telecommunication companies in Rivers State.

Table 5 : Summary of Spearman's rho on the relationship between Virtual meeting and performance in the telecommunication companies in Rivers State .

Correlations

	Variables		**Virtual Meeting**	**Organizational Performance**
Spearman's rho	Virtual Meeting usage	Correlation Coefficient	1.000	.196**
		Sig. (2-tailed)	.	.001
		N	273	273
	Organizational Performance	Correlation Coefficient	.196**	1.000
		Sig. (2-tailed)	.001	.
		N	273	273

***. Correlation is significant at the 0.01 level (2-tailed).*

The result on table 4.5 showed the summary of Spearman's rho on the relationship between **virtual meeting and** strategic market performance in the telecommunication companies in Rivers State**.** It shows that the virtual meeting usage **has a positive and strong relationship with** strategic market performance in the telecommunication companies in Rivers State (r=.196). The p-value of .001 shows that virtual meeting usage does relate to strategic market performance in the telecommunication companies in Rivers State (r=.196, p<.05). The null hypothesis five was rejected at 0.05 alpha level.

Conclusion

Based on the findings of the study, it can be concluded that the dimensions of computer-mediated communication explored are sound predictors of organizational performance of the telecommunication companies in Rivers State. This was because Social media usage, Cloud computing usage, and virtual meeting usage all relatively had positive and significant relationship to the strategic market performance and productivity performance in the telecommunication companies in Rivers State. Organizational culture also moderated the relationship between computer-mediated communication and organizational performance of the telecommunication companies in Rivers State.

The implication of the above findings was because computer-mediated communication for sustainability and increased performance essentially from the fact that there are constant changes in the business environment. The challengers of these changes make it imperative for adequate utilization of computer-mediated communication in order to meet such challenges. This is the only way telecommunication companies can ensure sustainability and increase performance in their competitive marketing environment. Effective and efficient utilization of computer-mediated communication always leads to sustainability and increased performance of organization through enhanced social media usage, cloud computing usage, virtual meeting usage, among the staff of the telecommunication companies in Rivers State.

Recommendations

In line with the findings and conclusion of this study, the following recommendations are made:

1. There should be regular research on computer-mediated communication in the telecommunication environment that requires training and upgrading of employees. Thus will enable the right training and development programmes to be designed and implemented so as to keep the employees abreast with the effective communication and performance.

2. Management of telecommunication companies should invest resources more on computer mediated communication to make communication a more easier and effective.

3. Telecommunication companies should seek professional advice from trusted cloud service vendors concerning the cloud computing service that best serve their long term goals at reasonable prices. This will not only give the companies virtual organizational operations, it will also provide high profiled corporate memory security which is necessary for sustainable organizational performance.

Contribution to Knowledge

This study has contributed to the literature by examining computer-mediated communication factors that influence the organizational performance of telecommunication companies in Rivers State, from the view point of their communication structure choices. This has helped us to understand the impact of institutional factors on Nigerian telecommunication companies' computer-mediated communication choice and how it affects their organizational performance. This study will be of help to CEOs and communication managers of telecommunication firms in Rivers State. Nigeria as the output of this study will serve as a useful database and resource material in the area of computer mediated companies and organ selection and capital budgeting.

Study should be designed on the basis of local context. Successive story is based on several local elements that could change in every case, even in same kind of business and region, e.g. organizational culture, organization structure, organization regulations etc.

The theoretical position of this study holds that telecommunication companies witnesses potential performance through a well structure computer-mediated communication channels, which has been identified as a crucial faction to be acknowledged and applied. This study position support their a prior theory of diffusion of innovation theory on which the study based its research which holds the processes involved in the adoption of innovations such as new technologies, techniques and procedures and as well as the resultant effects of such steps on organizational processes.

In line with the theory positions, the research therefore contributes to the wealth of knowledge concerning the application of computer-mediated communication to the performance of organization in telecommunication companies and other communication organizations.

Areas for Further Research

Based on the scope of the present study the following suggestions were made for further studies:

Having studied computer-mediated communication and organizational performance of telecommunication companies in Rivers State, it is germane at this point to initiate further research aimed at investigating the effect of computer mediated communication to communication patterns in Nigeria.

The variables of computer-mediated communication and organizational performance used in this study can be examined in other telecommunication institutions to see whether or not the research findings would be similar.

Further research should examine the relationship between computer-mediated communication and organizational performance in another geographical location.

REFERENCES

Ahiauzu, A. I. & Soye, P. A. (2016). Advanced social research methods: Cimrat Publications.

Al-Tit, A (2016). The mediating role of knowledge management and the moderating part of organizational culture between HRM practices and organizational performance. *International Business Research, 9*(1), 43.

Ashey, R. N. (2012). Computer-mediated communication and globalization: considering social, academic, and business factors. *Journal Social Sciences, Arts & Humanities,2*(1), 44-55.

Anggadriota, G., & Mustafid, Q.Y. (2014). Identification of factors influencing the performance of small medium enterprises (SMEs). *Procedia-Social and BehavioralSciences,115*, 415-423. https://doi.org/10.1016/j.sbspro.2014.02.448

Armbrust, M. Fox, A., Griffth, R., Joseph, A.D. Katz, R., Konwinski, A. Lee, G., Patterson, D., Rabkin, A., Stoica, I., Zaharia, M. (2010). A review of cloud computing. *Commun. ACM*, *53*(4), 50-58.

Armstrong, M., & Taylor, S. (2014). *Handbook of human resource management practice.* John Wiley & Sons. British: Kogan page. https://doi.org/10.117/030913258901300105 .

Bob, K. & Sooknana, P. (2014). The impact of computer mediated communication (CMC) on productivity an efficiency in organsiations: A case study of an electrical company in trinidad and tobago. *Advances in Journalism and Communication, 2* 45-51.

Bolisani, E., & Bratianu, C. (2017). Knowledge strategy planning: an integrated Approach to manage uncertainty, turbulence, and dynamics. *Journal of Knowledge Management, 21(2),* 233-253. http://doi.org/10.1108/JKM-02-2016-0071.

Bunekemifa, 0. L. (2019). *Assessing the impact of cloud computing on organizational performance of banks in Port Harcourt Metropolis*. [Unpublished M.Sc]. Dissertation, Department of Office and Information Management, Ignatius University of Education.

Caruso, C. (2016). *Can a Social-Media Algorithm Predict a Terror Attack*. https://www.technologyreview.com.

Culnan, M. J., Mc Hugh, P. J., & Zubillaga, J. I. (2010). How large U.S. companies can use Twitter and other social media to gain business value. *MIS Quarterly Executive,9(4),* 243-259.

Gavrea, C., llies, L. & Stegerean, R. (2011) Determinants of organizational performance: The case of Romania. *Challenges Management and Marketing for Knowledge Society*, *6(2),* 285-300.

Igloo, S. (2017). *Ro-why: The business value of digital workplace.*https://www-cmswire.simplermedia.com/rs/706-YIA.

Kaplan, A. M., & Haenlein, M. (2010). Users of the world, unite. *The Challenges and Opportunities of Social Media. Business Horizons*, *53*(1), 59-69.

Lages, L. F. (2000). A conceptual framework of the determinants of export performance: Reorganizing key variables and shifting contingencies in export marketing. *Journal of Global Marketing*, *13*(3), 29-51.

Lam, H. K. S., Yeung, A. C. L., & Cheng, T . C. E. (2016). The impact of firms' social media initiatives on operational efficiency and innovativeness. *Journal of Operations Management*,*47(4)*, 28-43.

Ling, B. (2013). 18 million obvious secrets about Facebook business pages you need to know today. Social times (July 26) http://www.insidefacebook.com/2017/04/25/18-million obvious -secret-about-facebook-business-pages-you-need-to-know-today/.

Lunenburg (2011). Goal-setting theory of motivation. *International Journal of Management, Business, and Administration*, *15(*1), 1-6.

Mattew, O. D. & Wali, J. C (2021). Workplace virtual meetings in Nigeria: Issues, challenges and prospects. *Internal Journal of Innovations in Management and Development Studies*, *8*(3), 1-12.

Olusanya, S. O., Awotungase, S. A. & Ohadebere, E. C. (2012). Effective planning and organizational productivity. *IOSR Journal of Humanities and Social Sciences*, *5(5),* 31- 39.

Olusanya, S. O., Awotungase, S. A. & Ohadebere, E. C. (2012). Effective planning and organizational productivity. *IOSR Journal of Humanities and Social Sciences*, *5(5),* 31- 39.

Onigbinde, I. O. & J. O. (2016). Evaluation of selected theories as applicable to marketing and consumer research. *Journal of Marketing and Consumer Research*, *17*(1), 71-80.

Opara, D. N. & Odu, S. (2020). Seminar writing and presentation compass in business discipline. *Management Science 6(5),* 213-222.

Opara-Martins, R. (2021). Assessing the impact of information technology on employee job performance in the banking industry. *International Journal of Innovations in Management and Development Studies*, *8*(3), 26-35.

Oyedijo, A. (2012). Strategic agility and competitive performance in the Nigerian telecommunication industry: An empirical investigation. *American International Journal of Contemporary Research, 2*(3), 227-237.

Parveen, F., Jaafar, N. I. Ainin, S., (2015). Social media usage and organizational performance: Reelecting of Malaysian social media managers. *Telematics and informatics*, *31(3),* 492-510.

Rogers, E. M. (2003). Diffusion of innovation. New York: The Free Press.

Rouse, M. (2020). *Customer base*. Routledge.

Sampson, A. (2013). Information and communication technology and administrative effectiveness in Nigerian universities. *Journal of Education and Human Development, 2*(1), 1-12.

SteenKamp, M. & Hyde-Clarke, N. (2014). The use of Facebook for political commentary in South Africa. *Telematics Inform*, *31(1),* 91-97.

Shahzad, F., Luqman, R., Khan, A., & Shabbir, L. (2012). Impact of organizational culture on organizational performance: An overview. *Interdisciplinary Journal of Contemporary Research in Business, 3,* 975-985.

Sylva, W. & Akpan, E. E. (2016). *The impact of social media initiatives on operational and financial performance outcomes: Two empirical studies*. An unpublished thesis submitted to the Hong Kong Polytechnic University.

Torabi, M. H. R., Kyani, A., & Falakinia, H. (2016). An investigation of the impact of knowledge management of keshavarzi bank branches in tehrani. *Procedia-Social and Behavioral Sciences*, *12(3),* 471-481. https://doi.org/10.1016/j.sbspro.2016.09.059

U. S. Department of Commerce (2011). *The nist definition of cloud. Gaithersburg: national institute of standards and technology*. http://crsc.nist.gov/publications

Wikipedia (2015). Cloud computing. http://enwikipedia.org/wiki/Cloud computing.

DIGITAL SECURITY ARCHITECTURE AND INFORMATION PURITANISM OF COMMERCIAL BANKS IN RIVERS STATE, NIGERIA.

Dr. Erien-naikachep Maurice Ikuru
Department of Office and Information Management
Ignatius Ajuru University of Education, Rumuolumeni Port Harcourt, Nigeria.
mauriceikuru95@gmail.com;
08064345396

ABSTRACT

This study investigated the relationship between digital security architecture and information puritanism of Commercial Banks in Rivers State. Generally, the objective of the study was to empirically examine how digital security architecture relate with information puritanism in terms of objectivity and traceability of Commercial Banks in Rivers State. The study adopted explanatory survey research design. The population of the study consisted of one hundred and fifteen (115) top managers from twenty-three (23) Commercial Banks operating in Rivers State, Nigeria, as top five managers were chosen from each bank. By census study, the entire population was employed as the sample size of the study. The reliability of the instrument was ascertained using Crombach Alpha with the least coefficient up to 0.743. Out of 234 copies of the questionnaire distributed, 226 copies of the questionnaires were retrieved. The data obtained from the field were analyzed using Spearman's Rank Order Correlation Coefficient and t-test with the aid of SPSS Version 22.0. Four hypotheses were tested using Spearman Rank Order Correlation. The study found that: data loss prevention has a moderate positive relationship with objectivity of Commercial Banks in Rivers State; data loss prevention has a weak relationship with traceability of Commercial Banks in Rivers State; security file transfer protocol mechanism has a very strong positive relationship with objectivity of Commercial Banks in Rivers State, and; security file transfer protocol culture has a moderate relationship with traceability of Commercial Banks in Rivers State. The study concluded that advancement in data security architecture such as data loss prevention and security file transfer protocol emanate to equivalent enhancement of puritanism of informationin Commercial banks. The study recommended amongst other things that management of commercial banks and other financial organizations should bring to fore the suggested dimensions of digital security architecture to remain current on best practices and innovations, ultimately improving their firms' information credibility.

Keywords: *Digital Security architecture, Data Loss Prevention, Security File Transfer Protocol, Information Puritanism, Objectivity, Traceability.*

INTRODUCTION

Information as a veritable resource of an organization especially in the Commercial bank is often describe as a lifeblood of an organization. Information puritanism is a practice that is aims to promote a culture of integrity, accuracy, and reliability in information sharing, it seeks to combat the spread of misinformation and disinformation, foster informed decision-making, and uphold the principles of transparency and objectivity in the pursuit of reliable knowledge by implementing security controls and maintaining compliance with regulatory requirements, the architecture ensures that personal data is protected, privacy is maintained, and information is handled in accordance with legal and ethical standards.The current era is called information and communication era as many studies are conducted regarding the collection, processing and transferring information (Bahman, 1991). This study measured information puritanism with objectivity, traceability, and credibility.

Objectivity allows others to assess the credibility and reliability of the information, and, the information should be free from undue influence, conflicts of interest, or external pressures that could compromise it.

Traceability outline that the methods and procedures used to collect the data, this helps establish the validity of the information by enabling others to replicate or validate the findings.

Credibility is produced by reputable sources that have a track record of reliability and accuracy and, credible information is consistent with other reliable sources and established knowledge within the field.The management information systems increased the managers' information and even the experts of various levels of the organization and by raising new concepts not only extended their knowledge scope about what they can do and what is their decision and helped them in doing their activities and responsibilities (Jams & Kent, 2003).

Digital security architecture ensures that data remains confidential, even if it is intercepted or accessed by unauthorized parties, incident response that involves the processes and procedures in place to detect, respond to, and mitigate security incidents or breaches. It includes incident detection, analysis, containment, eradication, and recovery activities. It is important to state that proficiency in operation of this framework is vital therefore, Digital security architecture begins with the establishment of security policies and standards that outline the organization's approach to security, define roles and responsibilities, and set guidelines for secure practices. As such, the study dimentionalize digital security with, data loss prevention, secure file transfer protocol and multi-factor authentication.

Data loss prevention DLP safeguards valuable intellectual property, trade secrets, or proprietary information from being compromised or stolen, it helps prevent unauthorized disclosure or misuse of critical business assets. DLP mitigates the risk of reputational damage that can occur as a result of data breaches or unauthorized disclosures. Security file transfer protocol SFTP includes mechanisms to verify the integrity of transferred files, it uses cryptographic hashes or checksums to ensure that files have not been tampered with during transit. Also, SFTP is platform-independent and can be used on various operating systems, making it flexible for different environments, such as, remote file management allows users to perform various file management operations, including uploading, downloading, renaming, deleting, and changing file permissions on remote servers. A relevant insider threat is inadvertent disclosure of an organization sensitive data by an employee due to non-compliance of security guidelines if any or due to an employee nonchalant or careless behaviour (Wuchner & Pretschner, 2012). It is important to state that many Commercial Banks are still experiencing uncertainty in the reliability of their information system despite several research effort in the area such the works of Bendovschi, A. (2015). Cyber-Attacks – Trends, Patterns and Security Countermeasures. Gross, et al (2017). Cyberterrorism: its effects on psychological well-being, public confidence and political attitudes, However, none of these studies specifically mentioned digital security architecture with data loss prevention, security file transfer protocol interact with information puritanism of Commercial Banks. This gives credence to this study.

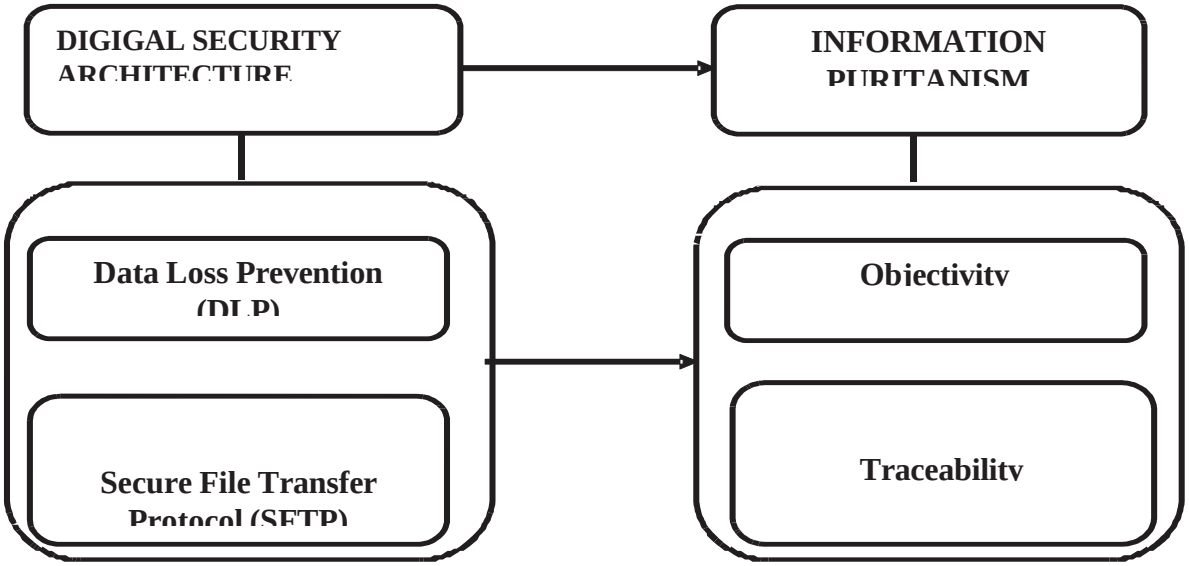


Fig. 1.1: Conceptual framework showing relationship between digital security architecture and information Puritanism of commercial banks In Rivers State.

Aim and Objectives of the Study

The aim of the study was to examine the relationship between digital security architecture and information puritanism of Commercial Banks in Rivers State. The specific objectives of the study include the following:

1. To ascertain the relationship between data loss prevention and objectivity of Banks in Rivers State.
2. To determine the relationship between data loss prevention and traceability of Commercial Banks in Rivers State.
3. To examine the relationship between security file transfer and objectivity of Commercial Banks in Rivers State.
4. To ascertain the relationship between security file transfer and traceability of Commercial Banks in Rivers State.

Digital Security Architecture

Digital security architecture refers to the design and implementation of a comprehensive framework of security measures and practices to protect digital assets, data, and systems from unauthorized access, breaches, or attacks. It involves the integration of various security components, technologies, and processes to create a robust and layered defense system. It also involves access controls which ensure that only authorized individuals or entities can access resources, systems, or data. This includes authentication mechanisms (e.g., passwords, biometrics), authorization controls, and user management practices. Because most of the architecture revolves around network in designing security architecture it is pertinent to put Network security in to consideration which involves securing the organization's network infrastructure to protect against unauthorized access, data interception, or network attacks. This can include firewalls, intrusion detection and prevention systems, virtual private networks (VPNs), and network segmentation.Trust is essential in situations where uncertainty and interdependence exist (Mayer, 1995), and thedigital environment certainly encapsulates those factors. Today's digital economy relies on an intricate,hyper-connected information and communication technology (ICT) ecosystem based on the processing oflarge streams of data (“big data”) enabled by sophisticated data analytics and the widespread use of mobile connectivity. An effective security architectures should carry data encryption that involves the use of cryptographic techniques to protect sensitive information and prevent unauthorized access. Security awareness and training programs educate employees and users about security best practices, policies, and procedures, it helps to create a security-conscious culture and reduces the risk of human error or negligence.By implementing a well-designed digital security architecture, organizations can establish a strong defense against cybersecurity threats, protect sensitive data, and maintain the integrity and availability of digital systems and assets. Digital security architecture on information puritanism is significant, as the security measures and practices implemented through the architecture directly support the principles and goals of information puritanism.

Data Loss Prevention (DLP)

Data Loss Prevention (DLP) refers to a set of strategies, policies, and technologies implemented to prevent the unauthorized disclosure, leakage, or loss of sensitive or confidential data. DLP aims to protect sensitive information from being accessed, shared, or transferred inappropriately, whether intentional or accidental more critically, DLP focuses on safeguarding sensitive data from unauthorized access, disclosure, or loss. Getting hacked is not just about losing the confidential data but losing the relationship with customers in the market (Bendovschi, 2015). It helps prevent data breaches, data theft, or inadvertent exposure by implementing controls and monitoring mechanisms which emphasize on Compliance with Regulations: DLP helps organizations comply with industry-specific regulations, data privacy laws, and contractual obligations. It ensures that sensitive data is handled and protected according to legal requirements and industry standards.By protecting sensitive data, organizations maintain trust with customers, partners, and stakeholders.

More specifically, DLP typically involves a combination of policies, procedures, and technologies to monitor, detect, and prevent data breaches. Some common components of a DLP solution include, data classification, data discovery and data monitoring. Implementing monitoring mechanisms to track data usage, access, and transfers. This includes real-time monitoring, alerting, and blocking of unauthorized activities or policy violations.By implementing a comprehensive data loss prevention strategy, organizations can minimize the risk of data loss or exposure, protect sensitive information, meet compliance requirements, and preserve their reputation.

Secure File Transfer Protocol (SFTP)

Secure File Transfer Protocol (SFTP) is a network protocol that allows for secure file transfer over a secure shell (SSH) connection. It provides a secure and encrypted channel for transferring files between a client and a server.SFTP offers several key features to ensure the security and integrity of file transfers. Today an individual can receive and send any information may be video, or an email or only through the click of a button but did s/he ever ponder how safe this information transmitted to another individual strongly with no spillage of data? The proper response lies in cybersecurity. Today more than 61% of full industry exchanges are done on the internet, so this area prerequisite high quality of security for direct and best exchanges. Thus, cybersecurity has become a most recent issue (Dervojeda, et. al., 2014). Consequently,SFTP is also designed to work well with firewalls and network address translation (NAT) devices, making it easier to deploy in secure network environments.SFTP is often preferred over other file transfer protocols, such as FTP (File Transfer Protocol), because it provides enhanced security features and encryption capabilities. It is commonly used in scenarios where secure and reliable file transfers are required, such as in corporate environments, cloud storage, and server-to-server transfers.

Information Puritanism

Information puritanism refers to a set of principles and practices that prioritize the integrity, accuracy, and reliability of information, it emphasizes the importance of presenting information in an unbiased, transparent, and evidence-based manner, free from personal opinions, biases, or distortions. The importance of information as an organizational resource has been identified by many studies (Abdul Kargbo, 2005; Akotia, 2003 ;) in order for the information to be useful and provide the needed knowledge, it has to be managed, there is enough evidence to explain that the degree of success enjoyed by an organization and its members depends largely on how well information is managed.The concept of information puritanism aims to counter the spread of misinformation, disinformation, and manipulation by promoting high standards of information quality and credibility. An information system is a collection of people, processes, data, and technology that work together to gather, store, and process, analyze, and disseminate information within an organization. It involves the use of technology and various components to manage and support the flow of information for decision-making and business operations. Information systems play a crucial role in organizations by facilitating efficient data management, supporting decision-making processes, enhancing communication and collaboration, and enabling strategic planning and analysis, they are integral to the functioning and success of modern businesses across industries. More specifically, factual accuracy, transparency and ethical responsibility Information puritanism places a strong emphasis on ensuring that information is based on verified facts. It promotes the use of reliable sources, fact-checking, and rigorous validation processes to ensure accuracy and minimize errors or inaccuracies. Consequently, information puritanism emphasizes the need for transparency in the sources, methods, and processes used to gather and analyze information. It promotes clear documentation of data sources, methodologies, assumptions, and limitations to enable users to evaluate the reliability and validity of the information, and ethical responsibility of individuals and organizations to provide accurate and reliable information, it discourages the intentional spread of misinformation, disinformation, or propaganda and promotes ethical practices in information dissemination.

Objectivity

Objectivity, in the context of information puritanism, refers to the principle of presenting information in an unbiased and impartial manner, free from personal opinions, prejudices, or subjective influences, it involves providing information that is factual, accurate, and based on evidence, without distorting or skewing it to favor a particular perspective or agenda, the focus is on maintaining the highest standards of objectivity in the dissemination and presentation ofinformation, this approach aims to ensure that information is reliable, trustworthy, and devoid of personal biases or subjective interpretations, objectivity maintain that information should be factual accuracy this means that it is based on verifiable facts and supported by evidence. In this respect, Wang (2011) argued that organizations need to treat information and its management as an imperative organizational activity that should be linked to the mission, strategy and goals of organizations. This is because information objectivity is notion for information to be free from inaccuracies, exaggerations, or distortions also, transparency and independency, the sources and methods used to gather information should be transparent and open to scrutiny. It should be produced and disseminated without bias. Adhering to these principles of objectivity, information puritanism aims to promote a high standard of integrity and trustworthiness in the information that is shared with the public. It seeks to create a foundation of reliable information for informed decision-making and discourse, free from manipulation or distortion.

Traceability

In the context of information puritanism, traceability refers to the ability to track the sources, origins, and verifiability of information, it involves providing clear and transparent documentation of the information's provenance, including the data sources, methodologies, and processes used to gather and analyze the information. Robertson (2005) explains that information management is a systematic process of collecting data from one or more sources, organizing, processing it into information, storing, and distributing the information to one or more users to help accomplish the organizational goals. The concept of traceability emphasizes the principle of source identification clearly identify the sources from which it is derived. This includes citing the authors, organizations, publications, or databases that provide the original data or information it emphases on data collection methods, data quality assurance and methodological transparency. Information should demonstrate efforts to ensure data quality, such as data validation, data cleaning, and verification processes, this helps to maintain the integrity and accuracy of the information.Information should provide a clear description of the analytical methods and techniques used to process and analyze the data. This enables others to assess the validity and robustness of the information.By emphasizing traceability, information puritanism aims to promote accountability, credibility, and trustworthiness in the information that is shared. It enables users to assess the reliability and validity of the information, make informed judgments, and engage in critical thinking. Traceability ensures that information is not just presented as isolated facts but is accompanied by the necessary context and documentation to enable users to evaluate its credibility and verifiability.

Theoritical Review

The study is anchored on Technology Acceptance Model (TAM) by Fred D. Davis (1989): this theory is an information system theory that models how users come to accept and use a technology. TAM model and provide insights into the factors that influence user acceptance and adoption of technology by understanding users' perceptions of usefulness and ease of use, as well as their attitudes and intentions, organizations can design and implement technologies that align with user preferences and drive successful adoption. The theory assumes that:

1. Perceived Usefulness (PU): Users are more likely to accept and use a technology when they perceive it to be useful in enhancing their job performance, productivity, or overall effectiveness.
2. Actual System Use (ASU): Users' actual usage of a technology is influenced by their behavioral intention and perceived usefulness and ease of use.
3. Perceived Ease of Use (PEOU): Users are more likely to accept and use a technology when they perceive it to be easy to use and require minimal effort or complexity.

Implication of this theory are users are more likely to accept and use data loss prevention measures when they perceive them to be easy to use, compatible with their needs, and effective in preventing data loss also users are more likely to accept and use secure file transfer mechanisms when they perceive them to be easy to use, reliable, and providing secure and encrypted transfer of files, consequently, users are more likely to accept and use multi-factor authentication when they perceive it to be easy to use, providing an additional layer of security, and not overly burdensome in their daily tasks, this in turn, leads to improved data protection, reduced risks of breaches and more secure digital environment.
Justification of incorporating TAM as the theoretical foundation is that, implementation of digital security architecture, organization can enhance user acceptance and adoption of the predictor's variable which are DLP, SFTP and MFA. This in turn, reinforce the principles of information puritanism by protecting objectivity, traceability and credibility of information.

Empirical Review

Piskovski et al. (2020) carried out a study to explore the problem of protecting information when attackers use indirect signs to gather valuable data. The study acknowledges that anonymization alone does not suffice in securing personal data. By leveraging information links, adversaries can re-identify depersonalized data and extract additional valuable information. The authors propose a distributed ledger architecture to register access to data containing indirect signs. This architecture allows for the identification of users attempting to recover information through indirect signs, thus enhancing information protection.

The key components of the proposed solution include a public resource for registering access facts and a mechanism for authorized users or commissions to obtain identifiers of organizations and individuals accessing the data. The distributed ledger ensures comprehensive and reliable information about data access, thereby deterring malicious activities. The study underscores the readiness of technical and theoretical bases for implementing such solutions.
Kumar & Singh (2013) conducted a study to investigate the effects of security risks on the architecture of information systems. The study qualitatively explores the relationship between security risks and architectural components, providing insights into designing secure and robust information systems. The findings suggest that addressing security risks at the architectural level is crucial for developing sound information systems. This complements Piskovski et al.'s (2020) emphasis on using advanced architectural solutions, such as distributed ledgers, to enhance information protection.

Park et al. (2000) carried out a study that review application-level security solutions designed for controlled dissemination of digital information. They identify eight security architectures based on virtual machines, control sets, and distribution styles. These architectures provide varying degrees of control and tracking capabilities for information dissemination and usage. The study highlights the need for comprehensive security architectures, which aligns with Piskovski et al.'s (2020) proposal of using distributed ledger technology for tracking data access and preventing information leakage.

DuraiPandian et al. (2006) conducted a study that discuss the importance of organization-specific security policies and internal controls to protect information against unauthorized access and misuse. They advocate for flexible, context-aware access control models that address the dynamic nature of organizational environments. This perspective supports Piskovski et al.'s (2020) approach of using a public resource and distributed ledger to register data access, thereby ensuring dynamic and context-aware information protection mechanisms.

Summary of Empirical Review and Knowledge Gap

S/N	Researcher (s)	Study Focus	Variables	Findings	Remarks: Knowledge Gap and Action
1	Piskovski et al. (2020)	Protecting information from attackers using indirect signs to gather valuable data	Anonymization, Information links, Distributed ledger architecture	Anonymization alone is insufficient; information links can re-identify data; a distributed ledger can track data access	The study of Piskovski et al. (2020) centered on protecting information attackers using indirect signs to gather valuable data. While this study focuses on digital security architecture and information puritanism of Commercial Banks in Rivers State. The current study dimensionalizes digital security architecture through Data loss prevention, secure file transfer protocol, multi-factor authentication; the study also measures information puritanism in terms of objectivity, traceability, credibility.
2	Kumar & Singh (2013)	Investigating the effects of security risks on the architecture of information systems	Security risks, Architectural components	Security risks impact architectural components; addressing risks at the architectural level is crucial for secure systems	The study of Kumar & Singh (2013) centered on investigating the effects of security risks on the architecture of information system. While this study focuses on digital security architecture and information puritanism of Commercial Banks in Rivers State. The current study dimensionalizes digital security architecture through Data loss prevention, secure file transfer protocol, multi-factor authentication; the study also measures information puritanism in terms of objectivity, traceability, credibility.

3	Park et al. (2000)	Reviewing application-level security solutions for controlled dissemination of digital information	Security architectures, Virtual machines, Control sets, Distribution styles	Identified eight security architectures with varying control and tracking capabilities	The study of Park et al. (2000) centered on reviewing application-level security solutions for controlled dissemination of digital information. While this study focuses on digital security architecture and information puritanism of Commercial Banks in Rivers State. The current study dimensionalizes digital security architecture through Data loss prevention, secure file transfer protocol, multi-factor authentication; the study also measures information puritanism in terms of objectivity, traceability, credibility.
4	Duraipandian et al. (2006)	Discussing organization-specific security policies and internal controls to protect information against unauthorized access	Security policies, Internal controls, Context-aware access control models	Emphasize the need for flexible, context-aware access control models	The study of Duraipandian et al. (2020) centered on discussing organization-specific security policies and internal controls to protect information against unauthorized access. While this study focuses on digital security architecture and information puritanism of Commercial Banks in Rivers State. The current study dimensionalizes digital security architecture through Data loss prevention, secure file transfer protocol, multi-factor authentication; the study also measures information puritanism in terms of objectivity, traceability, credibility.

Methodology

The study adopted explanatory survey research design. The population of the study consisted of one hundred and fifteen (115) top managers from twenty-three (23) Commercial Banks operating in Rivers State, Nigeria. Top five (5) top managers such as General Manager, Operations Manager, Human Resource Manager, Customer Relations Manager, and Information Technology Manager were chosen from each bank. Census was adopted for the study, the entire population was employed as the sample size of the study.

To obtain primary data, a structured questionnaire entitled "Digital security Architecture and Information Puritanism (DSAIP)" was designed in five point Likert scale with the following response options: Very High Extent (VHE) 4; High Extent (HE) 3; Moderate Extent (ME) 2; Low Extent (LE) 1. The instrument was validated by two experts in Management. The reliability of the instrument was ascertained using Crombach Alpha with the least coefficient up to 0.763. Out of 115 copies of the questionnaire distributed, 95 copies of the questionnaires were retrieved, representing 83%. The data obtained from the field were analyzed using Spearman's Rank Order Correlation Coefficient with the aid of SPSS 22.0 (Statistical Package for Social Sciences).

Decision Rule: Using a level of significance of 0.05 (confidence interval of 95%), when a calculated significant value is less than 0.05 the null hypothesis is rejected, if otherwise, the null hypothesis is accepted.

Results/Findings

Ho_1: Data loss prevention does not have any significant relationship with objectivity of Commercial Banks in Rivers State.

Ho_2: Data loss prevention does not have any significant relationship with traceability of Commercial Banks in Rivers State

Table 1: Correlation between Data Loss Prevention and Information Puritanism

		Predictor	**Criterion**	
		Data loss prevention	Objectivity	Traceability
Data loss prevention	Rho	1.000	.315**	.222**
	Sig.	.	.000	.000
	N	95	95	95

****. Correlation is significant at the 0.01 level (2-tailed).**

Source: SPSS Output from Field Data (2024)

Column two of table 1 above shows a correlation value of 0.315 at a significance level of 0.000 which is less than the chosen alpha level of 0.05 for the hypothesis relating to data loss prevention and objectivity. Since the significance value is less than the alpha level of 0.05, the null hypothesis (Ho_1) which states that data loss prevention does not have any significant relationship with objectivity of Commercial Banks in Rivers State was rejected. This indicates that there is a significant correlation between data loss prevention mechanism and objectivity of Commercial Banks. With a correlation value of 0.315, the result reveals that data loss prevention has a moderate positive relationship with objectivity of Commercial Banks in Rivers State. This equally implies that improvement data loss prevention brings about significant improvement in the objectivity of information in Commercial banks in Rivers State, Nigeria.

Column three of table 1 above shows a correlation value of 0.222 at a significance level of 0.000 which is less than the chosen alpha level of 0.05 for the hypothesis relating to data loss prevention and traceability.

Since the significance value is less than the alpha level of 0.05, the null hypothesis (Ho_2) which states that data loss prevention does not have any significant relationship with traceability of Commercial Banks in Rivers State was rejected. This indicates that there is a significant correlation between data prevention and traceability. With a correlation value of 0.222, the result reveals that data loss prevention has a weak relationship with traceability of Commercial Banks in Rivers State. This equally implies that increase in data loss prevention for enhanced information reliability brings about little improvement in the traceability Banks in Rivers State, Nigeria.

Ho_3: Security file transfer does not have any significant relationship with objectivity of Commercial Banks in Rivers State.

Ho_4: Security file transfer does not have any significant relationship with traceability of commercial Banks in Rivers State.

Table 2: Correlation between Security File Transfer and Information Puritanism

		Predictor	**Dependent**	
		Security File Transfer	Objectivity	Traceability
Security	Rho	1.000	.935**	.404**
File	Sig.	.	.016	.000
Transfer	N	95	95	95

****. Correlation is significant at the 0.01 level (2-tailed).**

Source: SPSS Output from Field Data (2024)

Column two of table 2 above shows a correlation value of 0.315 at a significance level of 0.00 which is less than the chosen alpha level of 0.05 for the hypothesis relating to off-the-job training and productivity. Since the significance value is less than the alpha level of 0.05, the null hypothesis (Ho_3) which states that security file transfer does not have any significant relationship with objectivity of commercial Banks in Rivers State was rejected. This indicates that there is a significant correlation between security file transfer and objective. With a correlation value of 0.935, the result reveals that security file transfer has a very strong positive relationship with objectivity of commercial Banks in Rivers State. This equally implies that increase in security file transfer brings about significant improvement in the objective of employees of commercial Banks in Rivers State.

Column three of table 2 above shows a correlation value of 0.222 at a significance level of 0.00 which is less than the chosen alpha level of 0.05 for the hypothesis relating to security file transfer and traceability. Since the significance value is less than the alpha level of 0.05, the null hypothesis (Ho_4) which states that security file transfer does not have any significant relationship with traceability of commercial Banks in Rivers State was rejected. This indicates that there is a significant correlation between security file transfer and traceability. With a correlation value of 0.404, the result reveals that security file transfer has a moderate relationship with traceability of commercial banks in Rivers State.

Discussion of Finding:

Ho_1: Data Loss Prevention and Objectivity

Result reveals that there is significant correlation between data loss prevention mechanism and objectivity of Commercial Banks. With a correlation value of 0.315, the result reveals that data loss prevention has a moderate positive relationship with objectivity of Commercial Banks in Rivers State. This equally implies that improvement data loss prevention brings about significant improvement in the objectivity of information in Commercial banks in Rivers State, Nigeria. This result is in line with the finding of Piskovski et al. (2020) which discuss the importance of securing personal data and overcoming depersonalization through information links. This aligns with the idea of maintaining objectivity in commercial banks by preventing data loss and ensuring data integrity.

Also this result aligns with the work of Kumar & Singh (2013) which highlight the impact of security risks on information system architecture, emphasizing the need for secure designs to protect data. This supports the finding that data loss prevention mechanisms can enhance the objectivity of commercial banks.

Ho_2: Data Loss Prevention and Traceability

Result reveals that there is a significant correlation between data prevention and traceability. With a correlation value of 0.222, the result reveals that data loss prevention has a weak relationship with traceability of Commercial Banks in Rivers State. This equally implies that increase in data loss prevention for enhanced information reliability brings about little improvement in the traceability Banks in Rivers State, Nigeria. This result aligns with the work Piskovski et al. (2020) which propose using distributed ledger architecture for tracking data access, which relates to traceability. This aligns with the finding that data loss prevention mechanisms improve traceability, albeit weakly. Also the work Park et al. (2000) agree with the findings above by identify security architectures to provide control and tracking capabilities for digital information dissemination. This relates to enhancing traceability through robust security measures.

Ho_3: Security File Transfer and Objectivity

Result reveals that there is a significant correlation between security file transfer and objective. With a correlation value of 0.935, the result reveals that security file transfer has a very strong positive relationship with objectivity of commercial Banks in Rivers State. This equally implies that increase in security file transfer brings about significant improvement in the objective of employees of commercial Banks in Rivers State. This result agrees with DuraiPandian et al. (2006) that discuss context-aware access control models, which ensure secure and controlled access to information. This can be linked to improved objectivity in commercial banks through secure file transfer mechanisms.

Ho4: Security File Transfer and Traceability

Result reveals that there is a significant correlation between security file transfer and traceability. With a correlation value of 0.404, the result reveals that security file transfer has a moderate relationship with traceability of commercial banks in Rivers State. This equally implies that increase in security file transfer brings about significant improvement in the traceability of data of commercial Banks in Rivers State. The result of this study agrees with Park et al. (2000) on security architectures that track digital information dissemination also supports the correlation between secure file transfer and traceability.

Conclusion

Digital security architecture plays a crucial role in supporting and enhancing information puritanism by incorporating dimensions such as data loss prevention, secure file transfer, and multi-factor authentication, these dimensions of digital security architecture directly influence the measures of information puritanism, including objectivity, traceability, and credibility. Data Loss Prevention (DLP) implemented within digital security architecture contribute to the preservation of objectivity by safeguarding the integrity and accuracy of information, by preventing unauthorized access, leakage, or disclosure of sensitive data, DLP supports the principle of presenting information in an unbiased and transparent manner, in the same vain, secure file transfer: Secure file transfer mechanisms provided by digital security architecture contribute to the traceability of information by ensuring encrypted and authenticated transfers, it enhances the ability to track the sources, origins, and verifiability of information, aligning with the goal of transparent and accountable information dissemination, consequently, multi-factor authentication (MFA): MFA, as part of digital security architecture, reinforces the credibility of information by adding an extra layer of authentication security, by requiring multiple forms of authentication, MFA strengthens the trustworthiness of information and helps prevent unauthorized access or disclosure. When digital security architecture incorporates data loss prevention, secure file transfer, and multi-factor authentication, it supports the objectives of information puritanism.

It helps maintain objectivity by preserving the accuracy and integrity of information, enables traceability by ensuring transparency and accountability, and enhances credibility by implementing robust authentication mechanisms, by integrating these dimensions into digital security architecture, organizations can foster an environment of trustworthy and reliable information that aligns with the principles of information puritanism.

Recommendations

1. Commercial banks and other financial institution should implement DLP measures, it can ensure the integrity, accuracy, and reliability of information. DLP helps prevent unauthorized access, leakage, or tampering of data, maintaining the objectivity of information.
2. Financial institutions should improvise secure file transfer mechanisms protect information from unauthorized modifications or tampering during transit, preserving its objectivity and reliability.
3. organization should culturize multiple-factor authentication as it adds an extra layer of security, reducing the risk of unauthorized access, by implementing MFA, organizations enhance the credibility of information by ensuring that only authorized individuals can access sensitive data or systems.

REFERENCE

Abdul Kargbo, J. (2005). Archives management in post-war Sierra Leone: Luxury or necessity? *Journal of the Society of Archives, 26 (2)*.

Akotia, P. (2003). Public sector records systems in Ghana: Some lessons in development management. *African Journal of Library Archives and Information Science, 13 (2)*.

Bahman, A. (1991). Plan deputy and defense and Armed forces support Ministry plan:" The management information plan of Armed forces support Ministry plan". *The Report of Systems Management and Informatics.* p. 7.

Bendovschi, A. (2015). Cyber-attacks – trends, patterns and security countermeasures. *Procedia Economics and Finance*, 24-31. doi:10.1016/S2212-5671(15)01077-

Dervojeda, K., Verzijl, D., Nagtegaal, F., Lengton, M., & Rouwmaat, E. (2014). Innovative business models: Supply chain finance. Netherlands: *Business Innovation Observatory*; European Union.

DuraiPandian, N., Shanmughaneethi, V., & Chellappan, C. (2006). Information Security Architecture-Context Aware Access Control Model for Educational Applications. *IJCSNS*, *6*(12), 197.

Gross, M. L., Canetti, D., & Vashdi, D. R. (2017). Cyberterrorism: its effects on psychological well-being, public confidence and political attitudes. Journal of Cybersecurity, 3(1), 49–58. doi:10.1093/cybsec/tyw018

Henczel, S. (2000). *The information audit as a first step towards.* Brighton: Special libraries association.

Jams,S & Kent,L.(2003). *Information systems in management- By E-business and internet applications.* Tehran. Negah Danesh publication.

Kumar, R., & Singh, H. (2013). A qualitative analysis of effects of security risks on architecture of an information system. *ACM SIGSOFT Software Engineering Notes*, *38*(6), 1-3.

Park, J., Sandhu, R., & Schifalacqua, J. (2000, December). Security architectures for controlled digital information dissemination. In *Proceedings 16th Annual Computer Security Applications Conference (ACSAC'00)* (pp. 224-233). IEEE.

Piskovski, V. O., Grusho, A. A., Zabezhailo, M. I., Nikolaev, A. V., Senchilo, V. V., & Timonina, E. E. (2020). Security Architectures in Digital Economy Systems. *International Journal of Open Information Technologies*, *8*(9), 48-52.

Robertson, J. (2005). Ten principles of effective information management: Step two design limited. (http//.www.steptwo.com.au/papers/kmc_effectiveim/index.html).

Wang, W. T. (2011). *Examining knowledge management during issue management: anagement Research Review, 34(4), 436-449.*

Wüchner, T., & Pretschner, A. (2012, November). Data loss prevention based on data-driven usage control. In 2012 IEEE 23rd International Symposium on Software Reliability Engineering (pp. 151-160). IEEE.

Greekline JOURNAL OF INNOVATIVE EDUCATION

Greekline PUBLICATIONS
ISSN: 279393X
AND ACADEMIC JOURNALS

PROMOTING MORAL PRINCIPLES IN BUSINESS EDUCATION PROGRAMME DELIVERY IN NIGERIA: ISSUES, CHALLENGES AND WAY FORWARD

OHAKA, Nyeche Christopher

ohakanyeche1@gmail.com

Department of Business Education, Faculty of Education,

Ignatius Ajuru University of Education, Rumuolumeni, Port Harcourt

ABSTRACT

This study was predicated on examining and exploring the Nexus between the application of moral principles in Business Education and the economy of Nigeria. By implication, the study tried to show how the application of moral principles in Business Education can bring about advancement in the economy of Nigeria. In attempt to do this, the researcher carefully explicated the key variables of the study ranging from the concept of morality to the concept of Business Education. The researcher refer to morality as a code of conduct put forward by a society, group or individual and, normatively, to refer to a code of conduct that, given specified conditions, would be put forward by all rational persons. The study noted that teaching moral education in Business Education is aimed at initiating the students into the realm of moral principles that are generally acceptable by members of the society. The researcher further noted that, the goal of Business Education is essentially to build morals, develop skills and develop the intellect of the recipients, and that promoting moral ideologies in Business Education through moral education helps to raise leaders and employees who can promote moral and ethical values in business organizations and specific industries which contributes in boosting the economic state of the nation. Based on the issues raised, the study concluded that, if Business Education as a critical contributor to the development of Nigerian economy by producing sound products, it must adopt relevant codes of conducts through policy formulation that will help to determine the behaviour of the stakeholders in the profession. Based on the conclusion, it was suggested among others that Business Education programme administrators should enact feasible administrative policies that will be predicated on advancing relevant and workable moral principles in Business Education.

INTRODUCTION

The term 'morality' can be used descriptively to refer to a code of conduct put forward by a society, group or individual and, normatively, to refer to a code of conduct that, given specified conditions, would be put forward by all rational persons (Aspin in Thornberg, 2008). It has long been a commonplace in the debate about the definition of morality, that moral terms are used in many different ways at different times and by different people. The search for a definition, therefore, is not a search for the one true definition which expresses all that anyone has ever meant by the term or the “true” meaning of the term. On the contrary, as Darwall (2019) highlights, the search has been for the best definition, the definition that will express the most important or the most useful of the various meanings that moral terms have in ordinary speech. In common terms, morality is the day-to-day practice of a group or individual's view of what is perceived to be the highest 'good'. The definition of 'good' is variable across groups and societies. Cultural, religious, gender, and even generational differences function as lenses through which reality is filtered. Moral or immoral behaviour of an individual does not really exist in a vacuum. There are multilayered cultural influences at play, whether conscious or not, that encourages one to either act morally or immorally. It is important to note that the job of promoting moral behaviours among individuals cannot be left to the compliance or legal function alone. Instead, administrators across the programme must cooperate in order to address the systemic factors in the culture of relevant stakeholders in the programme. However, there is a growing consensus among administrators that legal frameworks, organizational culture, rules and regulations are essential when it comes to promoting moral behaviours within the programme (Clothier & Steinholtz, 2017).

The concept of morality has been variously defined by philosophers and psychologists but in common terms it can be interpreted to mean a person's or society's view of what is perceived to be the highest good. Such a view is based on a set of principles, ideas and norms that are used to distinguish between 'right' and 'wrong'. The 'highest good' is often defined as those actions, behaviours, and mindset that contribute to what Aristotle calls *eudaimonia*, that is human flourishing or happiness. Though the notions of what is 'good' and what constitutes happiness has a definite cultural bias, morality generally refers to attitudes and predispositions that foster respect, responsibility, integrity and honesty. The respect and responsibility are the two core components of morality from which any other principle derives. The term respect includes two aspects that is respect for oneself and respect for others (their beliefs, opinions and culture). Responsibility involves an acceptance for one's own life and deeds and the commitment to the welfare of society generally through an active participation in the socio- economic, political and cultural activities of the community.

Morality: Meaning and Conceptualization

Plethora of notable and cerebral scholars and philosophers such as Socrates, Aristotle, Kant, John Locke, Rousseau, Pestalozzi, Farabi among others have in time past, made intelligent attempt to explicate the concept of morality from their various philosophical and personal standpoints. In their various elucidations, they attempted to take a standpoint on whether or not morality is changeable or not. Their various views can be summarized into two basic conceptions: the first conception is the one shared by scholars such as: Schopenhauer, Lamarck, Darwin, Yusuf-Has Hacip and Nasreddin-iTusi fact that states that morality is innate and underlies the belief that environmental factors will not bring about any change in human morality. This goes to prove the point that morality is intrinsic and as such, cannot be determined by any modicum of environmental factors. It further implies that an individual's moral principles is not acquired or learned and it is not the values of the society that shapes one's moral life. On the other hand, the other group of scholars such as Socrates, Aristoltle, Kant, John Locke, Rousseau, Pestalozzi, Farabi among others argued vehemently that morality can be changed. They proposes that morality and human temperament can be formed and reformed consequent upon environmental factors and circumstances (Erden, 2002).

The focal point of this view point is that people can become moral through education, discipline, law and advancement in knowledge. The concept of morality can be described and summarized as follows (Ozge, 2021):

1. Morality is a value that includes intrinsic/personal processes that distinguishes one human being from another.
2. Morality is a basic need which can be expressed as one of the indicators of its existence in human nature and as such, can be compared to some indispensable elements of human life such as; water, mother, etc.
3. Emotions are dominant among the primary causes of morality and concepts such as conscience, choosing the good, sense of responsibility and character are effective in the structuring of morality (Basdemir, 2007).
4. Morality encompasses values and rules that are emphasized by religious teachings (Bloom, 2012).

In almost all periods and in Ancient Greece to Islamic Philosophy, the concept of morality is considered to be one of the ultimate sources of happiness. Achieving happiness is associated with ding the right thing and useful things and is perceived as a pioneer of feeling peaceful (Vatandas, 2017). Morality is construct and practice that can be shielded (preserved) in Business Education (Naderi, 2014). In this instance, ethical codes and legal frameworks are frequently used in the adoption and protection of moral behaviour (Yuksel, 2015). Following the fact that morality can be seen as a value understood from behaviours, it is not enough to keep the knowledge acquired about morality in mind only as thoughts, feelings or judgments but also that these values should be turned into behaviours (Adiguzel, 2017). Morality deals basically with humans and how they relate to other beings, both human and nonhuman. It deals with how humans *treat* other beings so as to promote mutual welfare, growth, creativity, and meaning as they strive for what is good over what is bad and what is right over what is wrong.

The concept of morality, which is described as temperament, character or manners, expresses the established character structure in humans and the behaviours of individuals that occur under their own will. Although moral perceptions vary by time, society and culture, they also exhibit mandatory unchanging rules of behaviour (Kilic, 2012). This is one of the most emphasized concepts in the field of philosophy. Many philosophers have tried to answer the question of what morality is and associated morality with different concepts. Generally speaking, morality is defined as the group or network of beliefs, values, norms, orders, prohibitions and designs which are involved in the life of a person, group, people, social class, nation or cultural environment in a certain historical period and which guide their actions (Ozlem, 2004). Morality can be used to determine what is seen to be good and what is seen to be bad; what is right and what is wrong in a given society or among a group of people and to also evaluate the status of a particular action and practice in that area (Hitlin & Vaisey, 2010).

Morality is defined as cognition, behaviour and emotions related to the ability to judge right and wrong. It determines whether to accept or reject a behaviour, and guides emotions that motivate intentions and actions consistently (Kochanska in Limbasan et al., 2018; Kohlberg in Limbasan et al., 2018). Moral is a value of choice of an individual, which can also be owned and shared within a culture, religion and society (Vishalache, 2012). According to Hawley and Geldhof (2012) morality should not be measured by solely grading cognitive development but should also involve emotional development and transformation of the students through their ability to develop their sense of morality.

Morality also encompasses the following stages: the punishment and obedience orientation stage – here, moral decisions are made in response to authority; the instrumental/relativist orientation stage – here, individuals are pragmatic, and moral decision making is conditioned primarily by self-interest; the interpersonal concordance or "good boy—nice girl" orientation – here, individuals are "people pleasers." Being well-intentioned, for Examples, "He/she means well," carries weight at this stage; the "law and order" orientation – here, people are concerned with maintaining the social order for its own sake or as an end in itself; the social contract orientation stage – here, individuals understand that there are ends beyond the law and that laws are crafted to bring about these ends and t*he Universal-Ethical-Principle Orientation For the stage six individual – in this case,* right is defined by the decision of conscience in accord with self-chosen ethical principles appealing to logical comprehensiveness, universality, and consistency.

However, it is pertinent to note that what is considered moral varies from one society to another. For instance; in some religion, the practice of polygamy is considered to be immoral while in some religion, it can be seen as been moral. Also, in some cultures, female circumcision is seen as being good practice while in some other related African societies, it is considered to be a very bad practice. Morality can be seen as the reason for the action(s) taken by some individuals. Morality forms human conscience and perception. It helps to develop individual perceptions about issues of life. Morality is essential in curtailing human misdemeanor and determining the objectivity or subjectivity of every man. Morality includes those values, rules, norms, ethics and ethos that are usually emphasized by religious teachings and positive cultural orientations. According to Kropotkin (2005), morality can be categorized into three: religious morality, utilitarian morality and morality resulting from the necessity of living in the society. These categories of morality can be explicated as follows (Kropotkin, 2005):

1. ***Religious morality:*** It has to do with the behaviour shown as a result of with the expectation of reward or punishment as a result of religious teachings coming through revelation.
2. ***Utilitarian morality***: it deals with the determination of moral principles in line with one's own interest.
3. ***Morality arising from the necessity of living in a society:*** It deals with the evaluation of morality based on whether a behaviour is moral or not according to whether the criterion is appropriate for social life.

Teaching and Promoting Moral Education in Business Education

Moral education refers to the processes through which the relevant knowledge, attitudes, values and skills are transmitted and developed in children. As such, it focuses on the development of the cognitive, social and emotional skills which are necessary for moral thinking, action and feeling. Moral education concerns thus the practices and strategies that socializing agents use to equip children with the resources to address issues about right and wrong in their everyday life. One of the targets of teaching moral education in Business Education is thus to help students become autonomous decision makers but, at the same time, to create an attachment to fundamental values like respect and responsibility (Hamm 2003). Teaching moral education in Business Education remains fundamental and basic. Therefore, ignorance of moral principles and concerns inherent in the teaching business makes the society and corporate world vulnerable to possible and obvious menaces with far reaching implications for people's social, political, economic and cultural development (Boone, 2017; Anangisye, 2015).

Teaching moral education in Business Education is aimed at initiating the students into the realm of moral principles that are generally acceptable by members of the society. These moral principles includes social responsibility, job orientation, political participation and spiritual and moral values. Following the fact that in an archetypal African society child upbringing and students training was incomplete without the moral elements, the integration of moral education in Business Education becomes a sure approach. The teaching and incorporation of morality in Business Education remains germane because it involves people (trainee-teachers) who are supposed to teach ethics or exercise direct ethical practice as a prerequisite to their responsiveness in their professional endeavour since the nature and character of their profession is such that makes morality and moral education an crucial element (Anangisye, 2018). For this reason, it can be vehemently argued that ignoring the element of value and norms while teaching a course like Business Education can be considered a less lucrative venture.

The teaching of morality in Business Education arises since students can also be seen as social animals. That is to avow that the social nature of students has created the need for morality and not from a god but from the nature of human self-responsibility and social inter-relations (Herrick in Anangisye, 2018). It is also very imperative to note that sequel to the fact that no human being in this ecosystem is born with positive moral values, humanity must be taught moral values for the sake of advancing social order, social justice, peaceful co-existence, fairness, integrity, purposeful living and equity; Thus, the real reason for the integration of moral education in Business Education programme. Toeing this part, Fenstermacher in Anangisye (2018) noted that promoting moral education in Business Education has become sacrosanct as a result of the fact that no man was born compassionate, caring, fair, loving, and tolerant.

Moral education curriculum in Business Education should be mapped out in such a way that emphasis can be made on spirituality, family, environmental, social relationship and humanity for a holistic development of students. In Business Education, the focus on moral education for economic growth is a conscious attempt to establish moral and spiritual strength through the experiences and values gained from religion, tradition and culture. There are several areas of learning in the moral education syllabus that form the basis for nurturing good values among students. These learning areas focus on efforts to foster students' spiritual and moral strength through the appreciation and the practice of actually utilizing moral values and moral principles. Moral education syllable emphasize the shaping of the individual's good character and high moral standards. Moral education is a subject in the form of a programme that educates students to become a respectful and responsible citizen. This is achieved through inculcating, appreciating, reasoning and practicing certain identified values (Limbasan, Ling & Pang, 2018).

Since the understanding of morality is largely based on the development of persons within a particular social setting, moral education has been largely construed as part of the socialization process generally meant to prepare the students for a happy and productive life as a member of the community.

However, it is pertinent to note that the moral education in Business Education programme must also encompass four pivotal pillars of teaching and learning; character and morality; the individual and the community; civic studies and cultural studies. The moral education programme should also merge academic content with an exploration of character and ethics. Thus, moral education in Business Education has become increasingly needful consequent upon the fact that it is progressive in nature; designed to deliver meaningful lessons to all age groups. It encourages students to build on their own learning and experiences over the course of their schooling.

Conceptualizing Business Education

Business Education can be conceptualized as a laboratory for academics which seeks opportunities for providing the richness the workplace environment attracts to classroom learning experiences. Business Education as a programme set apart, is a critical component of vocational education specially designed to equip students with the right knowledge, skills and attitudes that is geared towards making them employable in the world of work, and fitting into various available office occupations. The course developed at this programme are usually aimed at exposing the recipients to various career opportunities like teaching, holding administrative offices, becoming self-employed and embarking on advanced Business Education programme (Ohaka, 2017).

It was in light of the above explication, that Osuala in Egberanmwen (2014) saw Business Education as consisting of two distinctive component parts such as: office education which is a vocational programme for office careers and general education which is a programme that provides information and competencies needed for managing and using business. Osulala in Egberanwen (2014) also posited that Business Education is a broad based education which prepares individuals for teaching business subjects as well as providing them with the knowledge, skills and attitudes needed for successful business. Business Education can also be seen as that aspect of vocational education that has skill acquisition, character moulding and knowledge development for business and administrative competence as its integral elements. Business Education develops in the recipients both industrial and educational competencies and efficiency (Akpomi & Ohaka, 2019). Business Education is the sum total of the knowledge, skills and attitudes that are required for successful promoting and administering of business enterprises (Akpomi, 2019).

Ohaka (2017) in his opinion, defined Business Education as a field of study that deals with training for the acquisition of lifelong and sustainable skills, gaining of sound knowledge and the development of good attitudes requisite for its recipients to feature professionally and competently both in the educational environment and in the business world. In the same vein, Business Education can be defined as a programme of study designed to prepare people to be gainfully employed and at the same time encourages the development of skills that are manipulative for being self-employed. The consequence of this is that, Business Education prepares the recipients for employment for office occupation as a whole, distribution and marketing occupations, teaching of business and the understanding of macro and microeconomic principles. Thus, Business Education being that programme of instruction which consists of both office education and general education will be of less value if it does not comply with the needs of time (Ibe & Nwosu, 2014).

Nigerian Economic System Ex-Rayed

The Nigerian economy, first and foremost, has been marked by massive changes over the past several centuries. While modern Nigeria is dominated by agriculture and petroleum, there were periods in history when many West African states were receiving almost all of their income from palm oil and enslavement.

The Pre-colonial Economy of Nigeria: The area that is now Nigeria was once home to numerous different states who were often rivals with each other.

These states were usually formed around ethnic groups or traditional tribal associations and included the Oyo Empire, the Edo Kingdom, the Hausa Kingdoms, and Igboland. The economies of these states mostly revolved around agricultural subsistence (self- sufficiency) and the exportation of palm tree products. They also served as profitable trade routes for other countries. However, we cannot discuss the economic development of West Africa without mentioning the slave trade. Indeed, the slave trade is the main way that various West African nations participated in the international economy. Slavery is when one human owns another human or humans as property. In West Africa, Africans sometimes enslaved each other as a consequence of war, or as a result of being perceived as ethnically or spiritually inferior to a ruling group. As a result, West African nations had long used slaves as a commodity. This was accelerated by the Islamic states in North Africa, which established the trans-Saharan slave trade. Under the trans-Saharan slave trade, slaves were sold and transported from West Africa to North Africa, where they could then be further sold throughout the Middle East and the Mediterranean. In the 16th century, Europeans enlarged the scope and scale of the West African slave trade. To meet the labour needs of their growing colonies in the Americas, Europeans purchased or captured slaves and transported them across the Atlantic as part of the transatlantic slave trade. The transatlantic slave trade increased the wealth of both European and African empires, while countless human beings were involuntarily forced into turmoil, hard labour, and death (StudySmarter, 2023).

The Colonial Economy of Nigeria: The financial success and broad scope of the slave trade attracted the attention of the British, ultimately leading to the Nigeria we know today. Although they had originally participated in the slave trade, the British ultimately declared slavery to be immoral. The British gained prominent influence in West Africa around 1807, when they banned all British subjects from participating in the slave trade. The British also tried to prevent all Europeans and Africans from participating in the slave trade, setting up naval blockades to prevent slave ships from leaving port. The loss of slavery as a viable source of income actually les to the economic collapse of several West African states such as the Edo Kingdom. As they say, 'The road to hell is paved with good intentions.' In place of the slave trade, the British began colonizing parts of West Africa, incorporating territories into the British Empire and exploiting them for resources and labour. Nigeria, as the country we know today, was established by the British Empire in 1900. The British Empire combined several different tribes, countries, and companies to create Nigeria. As the 'Colony and Protectorate of Nigeria,' the British transitioned the economy from revolving around subsistence farming to revolving around wage labour. The British also taxed Nigerians so they could afford to maintain a local military presence. Exports at this time included palm kernels and palm oil. Around 1906, the British also discovered that Nigeria had a supply of petroleum, an important resource in an increasingly industrializing world. This resource was not explored fully during the colonial period but would prove important for Nigeria

Overview of Nigerian Economy: In 1960, many different ethnic and religious groups came together in the movement to seek independence from the UK, so rather than dividing back into the nations that existed before British colonialism, Nigerians maintained the borders established by the British Empire, creating an independent nation composed of many different West African groups. Because of its cultural ties to the United Kingdom, Nigeria is a member of the Commonwealth of Nations, a group of former colonies of the British Empire. Although Nigeria's politics have been marred by infighting and corruption, its economy has grown substantially since independence. The Nigerian economy is typically classified as an **emerging economy**: an economy that is transitioning toward modernization. Today, Nigeria has the largest economy in Africa. In 2021, Nigeria's gross domestic product was over £400 billion. Based on GDP, Nigeria has the 26th largest economy in the world, putting it nearly on par with nations like Norway and Israel. If this trend continues, Nigeria may breach the top 10 within the next 50-100 years. The Nigerian currency is called the naira. Before and briefly during the colonial period, Nigerians uses cowrie shells as a currency, in addition to coins (StudySmarter, 2023).

Structure of Nigerian Economy: Nigeria has a **mixed economy** structured around capitalism. In a mixed economy, private businesses may receive government intervention and some sectors may be regulated or entirely controlled by the government. The name of the game is still fundamentally capitalist in nature: private businesses seek revenue in order to generate personal wealth. Nigeria is home to over 200 million people, making it one of the most populous countries in the world. This allows it to have a proportionately large labour force, which allows it to maintain numerous different economic sectors. Nigeria's economy increasingly revolves around importing and exporting. Today, one of Nigeria's largest exports is, in fact, petroleum. Nigeria is the largest exporter of petroleum in all of Africa. Most of Nigeria's petroleum is purchased by India and the United States. Around 90% of Nigeria's export profits come from petroleum. Nigeria also exports numerous agricultural products, including rubber and bananas. Palm oil, which has played an ever-important role in Nigeria's history, is still a significant export as well. Palm oil comes from the fruit of oil palm trees. Palm oil is a very common ingredient in many modern products, including processed foods, soaps, and cosmetics. It is also a very controversial crop as its production often leads to deforestation. Nigeria is also a big importer. Nigeria primarily imports food; industrial supplies and machinery; chemicals; minerals; and petroleum-based products. Nigeria's largest import partner is China, but several European countries like Belgium, Luxembourg, and the Netherlands export products to Nigeria as well (StudySmarter, 2023).

Major Sectors of the Nigerian Economy: We have an idea of who Nigeria is trading with, as well as where they stand globally. How is the Nigerian economy broken down by sector? There are four major economic sectors, which are grouped together based on types of employment and role in society. These economic sectors include (StudySmarter, 2023): ***the primary economic sector*** is concerned with raw goods, like food production and mineral extraction; associated careers range from hunters to farmers to lumberjacks to miners; ***the secondary economic sector*** is concerned with construction and manufacturing; ***the tertiary economic sector*** is concerned with services, ranging from banking to tourism to retail and ***the quaternary economic sector*** is concerned with technology, research, and education.

Most developed countries are dominated by tertiary and quaternary economic sectors. That being said, primary and secondary economic sectors usually never fully disappear. The reason that the Nigerian economy is considered an emerging economy, despite being so large and having such a big role in international trade, is because so much of its economy is still concentrated in the primary sector: food production, petroleum extraction, mineral extraction, and so forth. Around 20-25% of the economy revolves specifically around employment in and exportation of agriculture, though ironically, Nigeria also has to import some food to keep up with its expanding population (StudySmarter, 2023).

Moral Principles and Business Education Programme: Harnessing the interconnectivity

The essence of institutionalizing and championing the advocacy of moral principles in Business Education is to ensure that stakeholders especially the recipients of the programme are provided with adequate moral compass with which they can use to navigate through the socio-economic trajectory of Nigeria where immoral acts and corrupt practices both in the public and private sectors appears be order of the day. Folger, Cropanzano and Goldman (2005) were of the view that moral principles essentially tells one what is important and how they can behave towards other people around them (including animals and nature). Moral principles exists for the purpose of guiding human actions and behaviours. It helps to shape human conduct and determine what should be seen as bad or good in line with the values and norms of the given society. It is important to note here that, every moral principles are developed for the purpose of advancing the progress of the society and also build civility and harmony within a given society. According to John Locke in Timucin (2016), moral principles varies according to people, societies and countries. Aertor (2023) identified some specific moral principles that are essential in boosting the professional and ethical conduct of the major stakeholders in Business Education to include the following: do not lie, always stand by your promises, do not profit from someone else's misfortune, do not cheat, do not judge, do not disrespect others and always render help to the helpless.

Considering this perception advanced by John Locke it can however, be emphatically stated that moral principles on itself is not a universal construct, neither is it constant. It shows that moral principle is a function of what is considered generally by a group of people in the society as being right or bad. It further implies that there cannot be any universal or generally acceptable index or indices that can be used to measure morality as it were. But essentially, moral principles are created for the purpose of advancing social justice and order as well as promoting civility among members of a given society. Moral principles are usually associated with some social variables and can be handled within different frameworks.

There is no gainsaying the fact that Business Education plays a significant role in the propagation, internalization and promotion of certain moral principles among its recipients and other individual members of the society (Oral & Coban, 2019). Little wonder, some scholars such as Akpomi and Ohaka (2020); Bupo & Ohaka (2020), Ohaka and Bupo (2019) while defining Business Education, considered character formation and moral development as integral components or elements of the concept of Business Education. This further explains why over the years, Business Education has remained critical and unwavering in the advancement of moral and ethical conducts of the people through its continuous review of its curriculum to include salient elements that seeks to enhance the moral conduct of individuals and corporate organizations. However, the integration of morality and moral principles into the field of Business Education should not just be about the promotion of these principles among individuals and businesses (Stein & Fischer, 2011).

Moral principles have consequential effect on the implementation of Business Education curriculum in terms of what should be and what should not be (Stein & Fischer, 2011). This is because, any attempt not to consider the moral principles of the society in the development of the curriculum of Business Education, the aftermath effect may be detrimental to the programme. Thus, it is important that every stakeholder in Business Education are aware of the basic moral principles are also willing to follow such principles in the implementation of the programme. This gives credence to the fact why the concept of morality should be given special recognition in Business Education (Curtis, 2015; Hand, 2014; Lepage et. al., 2011; Samuelsson & Lindstrom, 2017; Sanger & Osguthorpe, 2013).

Ozge (2021) brilliantly attempting to disambiguate the concept of morality in Business Education and also provide its consequential interconnectivity, provided the following metaphoric perceptions of the concept of morality: morality is a value shaped by guidance/education; morality is a value shaped by the society; morality is a value that encompasses intrinsic/personal processes; morality is a requirement of social acceptance; morality is an element that eliminates wrongs/takes one to the rights; morality is a value that provides happiness and peace and also benefits; morality is a value understood from beaviour; morality is a value that requires knowledge; morality is an element of balance; morality is an element that is difficult/impossible to change; morality is a basic need; morality is a value that shapes/guides the individual; morality is a religious element; morality is a value to be protected; morality is a phenomenon that is open to interpretation/changes according to the person and morality is a feature that distinguishes one from other beings.

Promoting Moral Principles in Business Education and the Economy of Nigeria: Harnessing the Benefits and Strategic Nexus

The goal of Business Education is essentially to build morals, develop skills and develop the intellect of the recipients. Promoting moral ideologies in Business Education through moral education helps to raise leaders and employees who can promote moral and ethical values in business organizations and specific industries which contributes in boosting the economic state of the nation. Through these moral principles, business managers and industry leaders are discouraged from aiding and abetting corrupt practices that can be retrogressive towards the growth of the economy.

Importantly, Arteo (2023) asserted that moral principles in Business Education serves as a guide that determines the manner with which students should behave especially in their future careers, the kind of career choice they will have to make and the manner of relationship they would want to maintain with their peers and colleagues in the society and in the world of work.

According to Ponio (2021), some of the positive impacts of promoting moral principles in Business Education in relation to how it can affect the economy of Nigeria can be highlighted as follows: it contributes in building character in the individual, it leaves the recipients with the capacity to cope with difficult situations in life, it helps to form and shape their adult behaviour, it ameliorates the level of bad peer influence from contemporaries, it teaches its recipients how to differentiate right from wrong, it helps to enhance their social perception about life and it instills in the students the character and spirit of selflessness. Figure 1 below succinctly presents the framework of the specific constituents of the indices that makes up the prose of integrating moral principles in Business Education for improved national economic growth and development.

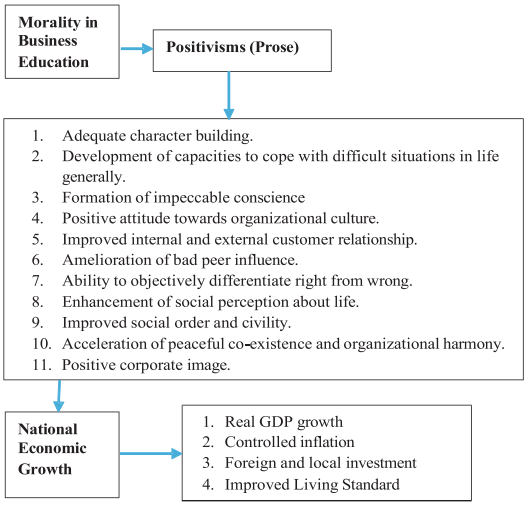


Fig. 1: Framework of Positive Impact of Moral Education in Business Education on Nigerian Economy
Source: Researcher's Conceptualization (2024)

One can certainly argue on a basis of enlightened self-interest that it is, at the very least, generally better to be good rather than bad and to create a world and society that is good rather than one that is bad. However, it is not being suggested at this point that one ought to pursue one's own self-interest. Rather, an argument is being presented that if everyone tried to do and be good and tried to avoid and prevent bad, it would be in everyone's self-interest. For example, if within a group of people no one killed, stole, lied, or cheated, then each member of the group would benefit. Therefore, even though it is not airtight (as Kai Nielsen's essay illustrates), the argument from enlightened self-interest is compelling. The self-interest argument can be a problem when other interests conflict with it; often it is difficult to convince someone who sees obvious benefits in acting immorally in a particular situation that it is in his or her self-interest to do otherwise.

Advancing the teaching of moral ideologies in Business Education contributes in inculcating in the individual the need for the total respect societal norms, values and the existing laws of the nation state. These laws includes those that are geared towards the sanitizing and salvaging the economy from the whims and caprices of some unscrupulous and nefarious industry players. Moral education in Business Education is a dependable strategy in the restoration of the economy of Nigeria from its woes.

For Nigeria's economic system to be salvaged, key stakeholders in Business Education programme have a significant role to play which is the promotion of generally acceptable moral standards and ideologies among relevant stakeholders.

This argument suggests that because traditions and laws, established over a long period of time, govern the behaviour of human beings, and because these traditions and laws urge human beings to be moral rather than immoral, there are good reasons for being so. Self-interest is one reason, but another is respect for the human thought and effort that has gone into establishing such laws and traditions and transferring them from one historic period and one culture to another. This can be an attractive argument, even though it tends to suppress questioning of traditions and laws—a kind of questioning that is at the core of creative moral reasoning. Morality established by tradition and law is problematic because it is difficult both to change and to question successfully. This lack of questioning sometimes encourages blind obedience to immoral practices. It encourages the belief that because something has been done a certain way for hundreds of years, it must be right.

Moral and Immoral Principles and Practices in Business Education that Negates Nigerian Economic Growth and Development

The promotion and institutionalization of positive moral principles and practices in Business Education has to do with the creation of a business organizational culture where people make decisions and act in ways that build sustainable businesses, care for the needs of all stakeholders and comply with their moral and legal obligations (Clothier & Steinholtz, 2017). Respect for human right and opinion, integrity, transparency, honesty and equity have also been advanced as some of the positive components of moral principles. On the other hand, it is also pertinent to note that there are considerable number of immoral principles and practices that can be counter-productive towards the growth and development of the national economy. These immoral principles usually do not conform to globally acceptable principles and standards and negatively affect the economy of the Nigeria. According to Okoye (2019), examination malpractices, irresponsible teaching, corruption, plagiarism, teachers' misconduct, incompetent teaching and cultism are some of the identifiable immoral principles cum practices in Business Education that contributes in bringing about poor economic growth. On a similar note, other observed immoral practices that are capable negatively affecting Business Education programme for national economic growth are highlighted as follows: academic dishonesty (copy and paste), favouritism and nepotism, tribalism and ethnicism, sex or money for grade, indecent dressing, office politics, unhealthy competition for power and authority among Business Educators, staff and student witch-hunt, and frustration of supervisees by supervisors.

Basic Approaches to the Study of Morality in Business Education

Every individual, professions and institutions upholds some moral principles which seeks the guide the conduct and mode of operations of the individual members of the profession. Most of these moral principles are most times, created by law and are usually encapsulated in the professional code of conduct for members.

According to Arteo, (2023), moral principles which can be described as standards of right and wrong, good or bad that a person or group has can be handed down to an individual or group individuals by family members or contemporaries. They can also be dictated by the society or religion, and they can certainly change throughout our lives depending on our experiences. But importantly and specifically moral principles can be transmitted through scientific or descriptive approach and through philosophical approach (The Nature of Morality, n.d.).

Scientific, or Descriptive, Approach: This approach is most often used in the social sciences and, like ethics, deals with human behavior and conduct. The emphasis here, however, is empirical; that is, social scientists observe and collect data about human behaviour and conduct and then draw certain conclusions. For example, some psychologists, after having observed many human beings in many situations, have reached the conclusion that human beings often act in their own self-interest. This is a descriptive, or scientific, approach to human behavior—the psychologists have observed how human beings act in many situations, described what they have observed, and drawn conclusions. However, they make no value judgments as to what is morally right or wrong nor do they prescribe how humans ought to behave (The Nature of Morality, n.d.).

Philosophical Approach: The second major approach to the study of morality is called the philosophical approach, and it consists of two parts. Normative, prescriptive, ethics - The first part of the philosophical approach deals with norms (or standards) and prescriptions. Another aspect of normative, or prescriptive, ethics is that it encompasses the making of moral value judgments rather than just the presentation or description of facts or data. For example, such statements as “Abortion is immoral” and “Lupe is a morally good person” may not prescribe anything, but they do involve those normative moral value judgments that we all make every day of our lives. The second part of the philosophical approach to the study of ethics is called metaethics or, sometimes, analytic ethics. Rather than being descriptive or prescriptive, this approach is analytic in two ways. First, metaethicists analyze ethical language (e.g., what we mean when we use the word good). Second, they analyze the rational foundations of ethical systems, or the logic and reasoning of various ethicists. Metaethicists do not prescribe anything nor do they deal directly with normative systems. Instead they “go beyond” (a key meaning of the Greek prefix meta-), concerning themselves only indirectly with normative ethical systems by concentrating on reasoning, logical structures, and language rather than on content (The Nature of Morality, n.d.).

Current Philosophical Positions on Morality in Business Education

Two theories have traditionally dominated this discussion. These philosophical positions include that of Aristotle and Dewey. Undoubtedly, over the years these discussions about the content and the process of morality in Business Education have been informed by these philosophical positions. While one may tend to argue that Aristotlelian ethics have underpinned the widely embraced character education approach, and that Dewey's concept of moral thinking would support the cognitive developmentalist approach, the demarcation is not so clear cut and the link not so direct. Neither does Aristotle reject the rational and scientific elements of moral thinking nor does Dewey ignore the concept of desire and feelings.

What an exposition of these philosophers has convincingly and successfully demonstrated to us is the undisputed role of Business Educators as moral educators. Their argument is similar to the revered notion that Business Education as a component of general education encompasses some pertinent moral elements or implications that cannot be overlooked or dismissed. Peters in Winch and Gingell (2023) and Peters (2015) further advanced their argument on the importance of morality and moral education in Business Education. The implication of their argument is the fact that Business Education itself has undeniable moral undertones embedded in it whether it is construed as a product or as a process. That is to opine that Business Education being a course of study that seeks to cultivate the intellectual, cultural and spiritual traditions of a society, is the idea that initiation in the moral traditions of a society is one important aspect of Business Education.

Philosophical analysis directs us towards an understanding of the assumption that underlies our concepts of moral education. Psychology, on the other hand, generates understanding of how the individual develops moral thought across various stages of life. Sociology highlights the interaction between individual thought and the social processes in the formation of the moral self. In each discipline the distinct traditions that have directed thought, have also served to enrich our understanding of the concept of moral education.

Conclusion

The pertinence of integrating and institutionalizing some morale elements and principles in Business Education programme as part of the collective and collaborative effort to boost and refocus the economic system of Nigeria cannot be overstressed. Part of the objectives of moral education in Business Education is to develop a body of moral principles in the major stakeholders of Business Education programme such as the students and Business Educators who will turn out to be responsible, responsive and accountable employees and industry players. The Nigerian economy of today requires individuals with good moral principles and standards to drive it. Hence, need for moral considerations in the curriculum of Business Education. Moral principles in Business Education programme would rather prevent the fabrication of reality, falsification of facts, sharp practices, racketeering, bribery, tribalism, favouritism and nepotism which have remained a bane to the economy of Nigeria. Thus, if Business Education as a critical contributor to the development of Nigerian economy by producing sound products, it must adopt relevant codes of conducts through policy formulation that will help to determine the behaviour of the stakeholders in the profession.

Suggestions

Based on the issues raised above, the following points are suggested for further policy considerations:

1. Business Education programme administrators should enact feasible administrative policies that will be predicated on advancing relevant and workable moral principles in Business Education.
2. Moral and ethical education should be included in the curriculum of Business Education at all levels of the programme so that all the major stakeholders can be instilled with the requisite moral principles and ideals needed for them to distinguish themselves in their chosen career.

3. Adequate measures should be put in place by the administrators of Business Education programme in order to promote the principle of morality by making sure that stakeholders who indulge in any form of immoral act are penalized. This will to a great extent serve as a deterrent to others who may intend to act immorally and bring the profession to disrepute.
4. Business Education students should be adequately prepared through moral education on the need for them to prioritize value creation, ethical standard, and proficiency development in the discharge of their corporate responsibilities.

REFERENCES

Adýgüzel, A. (2017). The relationship between university students' moral maturity levels and their general self-efficacy perceptions. Anatolian Journal of Educational Leadership and Instruction, 5(1), 1-17.

Akpomi, M. E. (2019). Organizing business education. Pre-Joe Publishers.

Akpomi, M. E., & Ohaka, N. C. (2019). Business education students' perception of the influence of technology on production efficiency of entrepreneurs in Rivers State. Conference paper presented at the 31st National Annual Conference of Association of Business Educators of Nigeria at Delta State from 9th-12th of October, 2019.

Akpomi, M. E., & Ohaka, N. C. (2020). Business Education students' perception of the influence of technology on production efficiency of entrepreneurs in Rivers State. Nigerian Journal of Business Education, 7(1), 288 - 302.

Anangisye, W. A .L. (2018). Rethinking the justification of teaching morality: Review-based evidence. Huria Journal, 25(1), 1-27.

Anangisye, W. A. L. (2015). Revisiting teachers' understanding of ethics and the teaching profession in Tanzania. Journal of Education, Humanities and Sciences, 4(2), 48 - 65.

Arteo, A. (2023). What Are Moral Principles? Retrieved from www.arteo.com.

Baºdemir, H. Y. (2007). Moral metaphysics. In R. Kaymakcan & M. Uyanýk (Eds.). Ethics with its theoretical and practical aspects). DEM Yayýnlarý.

Bloom, P. (2012). Religion, morality, evolution. Annual Review of Psychology, 63, 179 - 199.

Boone, B. (2017). Ethics 101: From altruism and utilitarianism to bioethics and political ethics, an exploration of the concept of right and wrong. Adams Media.

Bupo, G. O., & Ohaka, N. C. (2020). Business Education students' perception of the utilization of online platforms for educational assessment in Rivers State University. Nigerian Journal of Business Education, 7(1), 507 - 516.

Clothier, P., & Steinholtz, R. (2017). Ethical business values. Hart Publishers.

Curtis, E. (2015). The values dimension of quality teachers: Can we prepare pre-service teachers for this? Athens Journal of Education, 2(4), 313-330.

Darwall, S. (2019). Philosophical ethics. Routledge.

Egberenwen, E. P. (2014). Producing a global worker through business education with office technology and management (OTM) in perspective. Nigerian Journal of Business Education. 2(1), 134 - 142.

Erdem, H. (2002). Moral philosophy (2nd Ed.). Hü-erYayýnlarý.

Folger, R., Cropanzano, R., & Goldman, B. (2005). What is the relationship between justice and morality. In J. Greenbergand & J. A. Colquitt (Eds.), Handbook of Organizational Justice. Lawrence Erlbaoum Associates Publishers.

Hamm, C. M. (2003). Philosophical issues in Education: An introduction. Routledge.

Hand, M. (2014). Towards a theory of moral education. Journal of Philosophy of Education, 48(4), 519 - 532.

Hawley, P. H., Geldhof, G. J. (2012). Preschoolers' social dominance, moral cognition and moral behaviour: An evolutionary perspective. Journal of Experimental Child Psychology, 112, 18-35

Hitlin, S., & Vaisey, S. (2010). Back to the future. Reviving the sociology of morality. In S. Hitlin & S. Vaisey (Eds.). Handbook of the Sociology of Morality. Springer.

Ibe, E. C., & Nwosu, C. D. (2014). Business education and the challenges of time. Nigerian Journal of Business Education, 2(1), 55 - 62.

Kýlýç, P. (2012). The religious basis of morality (7th Ed.). Türkiye Diyanet Vakfý Yayýnlarý.

Kropotkin, P. (2005). Anarchy: Philosophy-ideal) (2nd Ed.). KaosYayýnlarý.

LePage, P., Akar, H., Temli, Y., ªen, D., Hasser, N., & Ivins, I. (2011). Comparing teachers' views on morality and moral education, a comparative study in Turkey and the United States. Teaching and Teacher Education, 27(2), 366 - 375.

Limbasan, S., Ling, M., & Pang, V. (2018). Students' moral behaviour inventory development and validation: A rasch analysis. Stemco Publishers.

Naderi, M. (2014). Pathology of preservation of morality in Islamic and western societies. Kuwait Chapter of Arabian Journal of Business and Management Review, 33(2569), 1 - 7.

Ohaka, N. C. (2017). Conflict management in schools: The role of the teacher as an inloco-parentis. GRINVerlag Publications.

Ohaka, N. C., & Bupo, G. O. (2019). Students' perception of business studies trainee-teachers and classroom conduct in Port-Harcourt secondary schools. International Journal of Innovative Education Research, 7(1), 73 - 82.

Okoye, A. C. (2019). Ethical considerations in business education for national development. Nigerian Journal of Business Education, 6(2), 237 - 247.

Oral, B., & Çoban, A. (2019). Basic concepts In B. Oral, A. Çoban, & N. Bars (Eds.), Moral and ethics in education. PegemAkademi.

Ozge, M. S. (2021). What is morality?: The concept of morality from prospective teachers' perspective. Bulletin of Education and Research, 43(1), 135 - 154.

Özlem, D. (2004). Ethics: Moral philosophy. NotosKitap.

Peters, R. S. (2015). Ethics and education. Routledge Revivals Publications.

Ponio, J. (2021). Why Are Moral Values Important in Children? Retrieved from https://www.ofhsoupkitchen.org

Timuçin, A. (2016). History of thought: Sources of realistic thought) (8th Edition). Bulut Yayýnlarý.

The Nature of Morality (n.d.). Chapter 1. Retrieved from www.mythinkinglab.com.

Thornberg, R. (2008). Values education as the fostering of school rules. Research in Education, 80(1), 200 - 211.

Samuelsson, L., & Lindström, N. (2017). On the educational task of mediating basic values in an individualist society. Athens Journal of Education, 4(2), 137 - 147.

Sanger, M. N., & Osguthorpe, R. D. (2013). Modeling as moral education: Documenting, analyzing, and addressing a central belief of pre-service teachers. Teaching and Teacher Education, 29, 167 - 176.

StudySmarter (2023). Nigerian Economy: Structure, Overview and Facts. https://www.studysmaster.co.uk.

Stein, Z., & Fischer, K. W. (2011). Directions for mind, brain, and education: Methods, models, and morality. Educational Philosophy and Theory, 43(1), 56 - 66.

Vatandaº, S. (2017). Morality as one of the basic subjects of philosophy and "happiness" as a goal of moral behavior. Journal of International Management and Social Researches, 4(7), 1 - 9.

Vishalache, B. (2012). Real lie dilemma in moral education. University Malaya Press.

Winch, C., & Gingell, J. (2023). The evolution of the thought of Richard Peters: Neglected Aspects. De Gruyter, 24(1), 21 - 51.

Yüksel, M. (2015). Code of ethics morality and the law. Hacettepe Law Review, 5(1), 9 - 26.

CONSTRAINTS OF VIRTUAL CLASSROOM MANAGEMENT IN EFFECTIVE INSTRUCTIONAL DELIVERY OF BUSINESS EDUCATION COURSES IN RIVERS STATE UNIVERSITIES

Dr. Kelechi Da-kaladokubo WOKOCHA
kelechiwokocha@yahoo.ca
07063743118
Department of Business Education,
Faculty of Education,
Ignatius Ajuru University OF Education,
Rumuolumeni, P.M.B. 5047,
Port Harcourt.

Prof. Boma Isabella DAMBO
damboboma@yahoo.com
080333415678
Department of Business Education,
Faculty of Education,
Rivers State University.

ABSTRACT

The study examined the constraints of virtual classroom management in effective instructional delivery of Business Education courses in Rivers State Universities. The study adopted the descriptive survey research design. Two research questions and two hypotheses guided the study. The population of the study comprised of all 54 Lecturers of Business Education of Rivers State University and Ignatius Ajuru University of Education all located in Rivers State. The entire population was used for the study. A structured questionnaire titled "Questionnaire on Constraints of Virtual Classroom Management in Effective Instructional Delivery" (QCVCMEID) was used as instrument for data collection. Three experts validated the instrument while PPMCC was used to obtain the reliability coefficient of 0.89. 54 copies of the questionnaire were distributed, retrieved and used for the study. The items were rated on a four (4) point rating scale; mean was used to analyse the research questions and t-test was used in testing the hypotheses. The findings revealed that internal constraints such as students' lack of concentration, financial conditions, lack of interest amongst students, inability to enforce sanctions, absence to physical contact, inadequate practice by students and external constraints such as lack of Information and Communication Technology accessories, poor network, unstable power supply, obsolete hardware/software applications, absence of extant regulations and noisy environment are constraints of virtual classroom management that hinders effective instructional delivery of Business Education courses in Rivers State universities. The researchers recommended provision and activation of rules to guide the instructional delivery process online and ensure the provision of Information and Communication Technology facilities as this will help in virtual classroom management in effective instructional delivery of business Education courses.

Keywords: Virtual Classroom, Management, Instructional Delivery, Business Education.

INTRODUCTION

The increasing use of Information and Communication Technologies has led to the phenomenal growth and use of computer devices and accessories in higher education over the past decade. The incorporation of technology into the delivery of academic coursework may include two distinct modalities, namely the fully online modality and the traditional face-to-face modality. The academic world continuously incorporates the advantages of modern technologies such as the internet, portable computing devices, and dynamic media into the educational arena.

The internet has evolved into a global and commercial communication infrastructure with supporting applications for use at work, school, and home and in between.

The advent of the virtual classroom has made it possible for learners to explore the facilities of the internet to create meaningful and constructive learning environments. Consequently, physical classroom features have been transformed into a virtual classroom with enhanced features. Virtual classroom is an online learning environment that contains all required course materials; it is a learning system that provides the same opportunities for teaching and learning process beyond the physical limits of the physical classroom walls and is usually web-based (Rufai, Alebiosu & Adeakin, 2015). According to Nicholas, Ambrose, Uyiosaifo and Michael (2015), a virtual classroom is an environment conducive for learning, which takes place in the cyberspace. It provides the tools that learners need and brings together educators and learners to share information and ideas. The virtual classroom is a special form of e-learning that finds relevant applications in enriching the conventional learning methods and this is achievable deploying a wide range of technologies and media.

Virtual classrooms are technological-driven classrooms that support self-directed and self-regulated learning and could be seen as that classrooms, capable of replacing partially or totally the conventional educational, evaluative and administrative functioning of a regular classroom by adopting the advanced computer and Information and Communication Technologies like the internet, e-mail, on-line chatting, www, CD-ROMS, DVDs, teleconferencing and video conferencing (Anekwe, 2017). Virtual classroom isn't only something for distance learners, but also for blended learning, or even as a supplement of on-campus courses. In contemporary virtual classroom environments, there is a variety of features available that could be exploited not only to emulate a traditional classroom, but also to move beyond the traditional classroom Limitations (Xenos, 2018). Virtual classroom is a set of teaching and learning tools which intends to improve learning experience of students with the help of various technological devices; Virtual classroom is an online learning environment that contains all course materials (Rajab & Soma, 2020). Thus, virtual classroom can be viewed as a computer mediated learning process which is most often referred as online learning/e-learning. Today, the most commonly used Virtual Classroom platforms in our institutions include; zoom, google classroom, whatsapp etcetera.

Despite the enormous benefits associated to the use of Virtual classrooms, authors have reported several constraints in its implementation. Ohiwerei, Azih and Okoli (2013) in a study titled problems militating against the utilization of Information and Communication Technology in teaching Business Education in Nigeria universities highlighted the problems to include, lack of computers, lack of qualified teachers to teach Information and Communication Technology in schools, lack of provision of electricity in schools, fear of indispensable, lack of internet connectivity and obsolete computers etc. Accordingly, Rajab and Soma (2020) asserted that the challenges in virtual learning may be internal/subjective and external/objective from the perspective of the teacher. Internal challenges such as the lack of interest to learn and adapt to new learning situations, unwillingness to apply Information and Communication Technologies in classroom, age old belief into the effectiveness of chalk and talk method of teaching, time consuming with respect to preparation of lecture materials, fear of students looking into inappropriate sites, lack of interest and motivation among the students to learn, inability to motivate the students to use virtual learning mode, absence of face-to-face contact, grasp over language often acts as a barrier as virtual classrooms, lack of interest and motivation among the students to learn, financial conditions, inadequate practice. The external challenges include; lack of interest of authority in preparing/ providing the appropriate infrastructure, lack of awareness of the benefits of virtual learning, and lack of coordination between the educational institutions and the community. In the contest of this study, internal constraints are factors within the control of the educator and external controls are factors outside the control of the educator. The virtual classroom like the traditional learning environment requires effective management to achieve the desired result of instructional delivery.

Classroom management is the act of supervising relationships, behaviors, and instructional settings and lessons for communities of learners; classroom management is a preventive activity which will reduce indiscipline (Iverson 2003 as cited in Rufai et al., 2015, p. 29). Classroom management is an extensive and essential component that expresses how a teacher manages the learning activities, the pupils' behaviour and other social rapport in the classroom (Adedigba & Sulaiman, 2020). Classroom Management involves actions and strategies that instructors use to maintain order/decorum in a classroom. In the other hand Virtual Classroom Management involves all preventive measures put in place to achieve order in online classrooms; better put, for effective instructional delivery in a computer mediated learning environment.

Instructional delivery is a process of facilitating learning which is expected to bring about change in behaviour of the learner and this process is only achievable by the provision of certain instructional facilities. Accordingly, Ubulom (2006) emphasized that optimum teaching and learning delivery in business education is only achievable by adequate and efficient provision of requisite instructional facilities and that where the requisite teaching and learning tools are non-existence or inadequate, effective instructional delivery may not take place. Comfortable classrooms and adequate provision of instructional resources facilitate teachers' instructional task performance and students' learning outcomes (Ayeni & Adelabu, 2012). Ayeni & Adelabu stressed further that the quality of learning facilities available within an educational institution has positive relationship with the quality of teaching and learning activities which in turn leads to the attainment of goals set. This is where technology comes in but not without its own challenges, necessitating the application of several strategies that will help limit indiscipline and promote better management of the virtual classroom as desired by every educational setting, even the Business Education programme.

Business Education is an educational programme in institution of learning which offers individuals opportunity for gainful employment through the acquisition of skills and knowledge that affects the business world (Amaewhule & Appah, 2019). Business Education is a vocational programme with the aim of equipping students so that at the end they could acquire knowledge and skills that could enable them to be self-reliant (Amesi & Allison, 2020). Thus, Business Education is a programme of study that instils in learners, aptitudes needed for successful participation in business or performance in the world of work Today, the Business Education programme like every education programmes is making effort to adopt technology for instructional delivery. The outbreak of the Corona Virus (COVID 19) pandemic and the institution of several preventive measures as lockdown and social distancing has greatly necessitated the use of technology for instructional delivery which is also not limited to certain constraints that remains a threat to its complete adoption or integration.

Statement of the Problem

The introduction of Information and Communication Technologies in classroom instructions in Nigerian universities and in the Business Education programme in particular means more than teaching basic computer skills and software programs. The integration and application of technology cut across the curriculum in ways that deepen and enhance effective instructional delivery. Virtual classrooms are becoming the order of the day in the face of several restrictions that have hindered the smooth running of traditional/physical learning as a result of the outbreak of pandemics and other life threatening societal challenges. Virtual classrooms change the way lecturers teach, students learn, students understand and lecturers/students relationship. Like the traditional classrooms, teachers need to ensure proper management for effective instructional delivery even in Virtual Classrooms. Unfortunately, the application of modern technologies in Business Education has suffered some setbacks (Okoro, 2020) and observation shows that there have been a lot of outcries on managing virtual classrooms in the delivery of Business Education courses. What then are the constraints of virtual classroom management in effective instructional delivery of Business education courses in Rivers State universities?

Purpose of the Study

The purpose of this study was to investigate the constraints of virtual classroom management and effective instructional delivery of Business Education courses in Rivers State universities. Specifically, the study sought to;

1. Ascertain the internal constraints of virtual classroom management in effective instructional delivery of Business Education courses in Rivers State universities.
2. Ascertain the external constraints of virtual classroom management in effective instructional delivery of Business Education courses in Rivers State universities.

Research Questions

The following research questions were answered:

1. What are the internal constraints of virtual classroom management in effective instructional delivery of Business Education courses in Rivers State universities?
2. What are the external constraints of virtual classroom management in effective instructional delivery of Business Education courses in Rivers State universities?

Hypotheses

The following null hypotheses were tested:

1. There is no significant difference in the mean responses of Business Education lecturers of Rivers State University and Ignatius Ajuru University of Education on the internal constraints of virtual classroom management in effective instructional delivery of Business Education courses in Rivers State universities.
2. There is no significant difference in the mean responses of Business Education lecturers of Rivers State University and Ignatius Ajuru University of Education on the external constraints of virtual classroom management in effective instructional delivery of Business Education courses in Rivers State universities.

Methodology

The descriptive survey research design was used in conducting the study. The population for the study as indicated in the table below comprised of all 54 Business Education Lecturers of Rivers State University and Ignatius Ajuru University of Education.

Table 1: Population Distribution

S/N	INSTITUTIONS	TOTAL NO. OF BUSINESS EDUCATION LECTURERS
1.	Rivers State University (RSU)	18
2.	Ignatius Ajuru University of Education (IAUE)	36
G/TOTAL		**54**

Source: Head of Departments, 2024.

No sampling study, technique was used for the study, since the population was small. The instrument used for data collection was a structured questionnaire titled "Questionnaire on Constraints of Virtual Classroom Management in Effective Instructional Delivery" (QCVCMEID). The instrument provided response to the two research questions with 15 items; Item 1-8 addressing Research Question One and item 9-15 addressing Research Question Two in a 4-point rating scale weighted as "Strongly Agree" (SA) – 4 points, "Agree" (A) – 3 points, "Disagree" (D) – 2 points and "Strongly Disagree" (SD) – 1 point. To establish the validity of the instrument, the questionnaire was subjected to face and content validity by two experts from the Department of Business Education and one expert from Measurement and Evaluation, all in the Faculty of Education in Rivers State University.

To ensure the consistency of the instrument, the test- retest method of reliability was adopted and Pearson Product Moment Correlation Coefficient (PPMCC) was used to establish the reliability coefficient of .89. 54 copies of the questionnaire were retrieved and used for the study; this represents 100 per cent of the total number distributed. The data analysis was done using the mean to analyze the research questions while t-test was used to test the hypotheses. The mean was obtained by the summation of all responses as assigned to a rating scale in an item divided by the total number of responses: 4+3+2+1/4 = 2.50. The mean score of 2.50 and above indicate agreement, while those below 2.50 indicate disagreement. Also, the decision rules for the hypotheses was that any hypothesis which t-calculated value is less than the t-critical table value of 1.96 is considered accepted whereas if it is more than the critical table value is considered rejected.

Results

Research Question 1

What are the internal constraints of virtual classroom management in effective instructional delivery of Business Education courses in Rivers State universities?

Table 2: Mean Ratings on internal constraints of virtual classroom management in effective instructional delivery of Business Education courses in Rivers State universities. N=54

S/N	Statements	Business Education Lecturers						RSU/IAUE Lecturers		
		RSU (18)			IAUE (36)					
		$\overline{X}$	STD	RMKS	$\overline{X}$	STD	RMKS	$\overline{X}$	STD	Remarks
1.	Students' lack of concentration hinders virtual lecture delivery.	3.03	0.99	A	2.95	0.99	A	2.99	0.99	A
2.	Lecturers' lack of interest affects instructional delivery virtually.	1.47	0.72	SD	1.46	0.59	SD	1.47	0.66	SD
3.	Financial conditions are a major concern for virtual learners.	3.13	0.89	A	2.90	1.03	A	3.01	0.96	A
4.	Over reliance on talk and chalk method affects virtual lecture delivery.	1.82	1.05	D	1.80	0.89	LE	1.81	0.97	D
5.	Lack of interest amongst students hinders lecture delivery.	3.08	0.98	A	3.05	0.96	A	3.06	0.95	A
6.	Inability to enforce sanctions during lecture delivery.	3.34	0.62	A	3.30	0.51	A	3.32	0.57	A
7.	Absence to physical contact causes disturbance during lectures.	3.54	0.90	SA	3.51	0.96	SA	3.52	0.93	SA
8.	Inadequate practice by students hinders instructional delivery.	3.47	0.72	A	3.46	0.59	A	3.47	0.66	A
	Total Mean/SD	**22.88**	**6.87**		**22.43**	**6.52**		**22.65**	**6.69**	
	Grand Mean/SD	**2.86**	**0.86**	**A**	**2.80**	**0.82**	**A**	**2.83**	**0.84**	**A**

Source: Survey Result, 2024.

The data presented in Table 2 shows that the responses of the respondents for items 1, 3, 5, 6, 7 and 8 had an average mean scores of 2.99, 3.01, 3.06, 3.32, 3.52 and 3.47 respectively; this implies that the respondents agree that students' lack of concentration, financial conditions, lack of interest amongst students, inability to enforce sanctions, absence to physical contact and inadequate practice by students hinders instructional delivery but disagrees that lecturers' lack of interest and over reliance on talk and chalk method affects virtual lecture delivery. However, the table also revealed a grand mean of 2.83 which indicates that the factors mentioned above are internal constraints of virtual classroom management in effective instructional delivery of Business Education courses in Rivers State universities. The standard deviation values ranges from 0.66 to 0.99 with a grand standard deviation of 0.84, indicating a close response from the respondents on all items.

Research Question 2

What are the external constraints of virtual classroom management in effective instructional delivery of Business Education courses in Rivers State universities?

Table 3: Mean Ratings on external constraints of virtual classroom management in effective instructional delivery of Business Education courses in Rivers State universities. N=54

S/N	Statements	Business Education Lecturers						RSU/IAUE Lecturers		
		RSU (18)			IAUE (36)					
		$\overline{X}$	STD	RMKS	$\overline{X}$	STD	RMKS	$\overline{X}$	STD	Remarks
9.	Lack of ICT accessories hinders virtual lectures.	3.55	0.68	SA	3.54	0.77	SA	3.54	0.72	SA
10.	Poor network hinders instructional delivery.	3.61	0.67	SA	3.36	0.76	SA	3.48	0.71	A
11.	Unstable power supply affects virtual lectures.	3.50	0.88	SA	3.46	0.80	A	3.48	0.84	A
12.	Obsolete hardware/software applications affect virtual lectures.	3.52	0.85	SA	3.51	0.67	SA	3.51	0.76	SA
13.	Course outline hinders virtual instructional delivery.	1.13	0.52	SD	1.12	0.50	SD	1.12	0.51	SD
14.	Absence of extant regulations guiding virtual lectures.	3.30	0.66	A	3.27	0.59	A	3.29	0.63	A
15	Noisy environment hinders virtual lectures	3.53	0.54	SA	3.51	0.50	SA	3.52	0.52	SA
	Total Mean/SD	**22.14**	**4.80**		**21.77**	**4.59**		**21.96**	**4.69**	
	Grand Mean/SD	**3.16**	**0.69**	**A**	**3.11**	**0.66**	**A**	**3.14**	**0.68**	**A**

Source: Survey Result, 2024.

The data presented in Table 3 shows that the responses of the respondents for items 9, 10, 11, 12, 14 and 15 had an average mean scores of 3.54, 3.48, 3.48, 3.51, 3.29 and 3.52 respectively; this implies that the respondents agree that lack of ICT accessories, poor network, unstable power supply, obsolete hardware/software applications, absence of extant regulations and noisy environment hinders instructional delivery but disagrees that course outline hinders virtual instructional delivery. However, the table also revealed a grand mean of 3.14 which indicates that the factors mentioned above are external constraints of virtual classroom management in effective instructional delivery of Business Education courses in Rivers State universities. The standard deviation values ranges from 0.51 to 0.84 with a grand standard deviation of 0.68, indicating a close response from the respondents on all items.

Hypothesis 1

There is no significant difference in the mean responses of Business Education lecturers of Rivers State University and Ignatius Ajuru University of Education on the internal constraints of virtual classroom management in effective instructional delivery of Business Education courses in Rivers State universities.

Table 4: t-test result on internal constraints of virtual classroom management in effective instructional delivery of Business Education courses in Rivers State universities.

Respondents	N	Mean	Std. Dev.	df	t- Cal Value	t- Crit Value	L/Sig	Decision
RSU	18	2.86	0.86					
				52	0.36	1.96	0.05	Accepted
IAUE	36	2.80	0.82					

Source: Survey Result, 2024.

Table 4 above revealed a t-calculated value of 0.36 which is less than the t-critical value of 1.96. Thus, thenull hypothesis was accepted. This means that Business Education lecturers in Rivers State University and Ignatius Ajuru University of Education do not differ significantly on the internal constraints of virtual classroom management in effective instructional delivery of Business Education courses in Rivers State universities.

Hypothesis 2

There is no significant difference in the mean responses of Business Education lecturers of Rivers State University and Ignatius Ajuru University of Education on the external constraints of virtual classroom management in effective instructional delivery of Business Education courses in Rivers State universities.

Table 5: t-test result on external constraints of virtual classroom management in effective instructional delivery of Business Education courses in Rivers State universities.

Respondents	N	Mean	Std. Dev.	df	t- Cal Value	t- Crit Value	L/Sig	Decision
RSU	18	3.16	0.69					
				52	0.41	1.96	0.05	Accepted
IAUE	36	3.11	0.66					

Source: Survey Result, 2024.

Table 5 above revealed a t-calculated value of 0.41 which is less than the t-critical value of 1.96. Thus, the null hypothesis was accepted. This means that Business Education lecturers in Rivers State University and Ignatius Ajuru University of Education do not differ significantly on the external constraints of virtual classroom management in effective instructional delivery of Business Education courses in Rivers State universities.

Discussion of Findings

The findings on research question 1 with respect to internal constraints of virtual classroom management in effective instructional delivery of Business Education courses in Rivers State universities indicated that the respondents disagrees that lecturers' lack of interest and over reliance on talk and chalk method affects virtual lecture delivery but agreed that students' lack of concentration, financial conditions, lack of interest amongst students, inability to enforce sanctions, absence to physical contact and inadequate practice by students hinders effective instructional delivery of Business Education courses in Rivers State universities. This finding is in agreement with Rajab and Soma (2020) who asserted that the challenges in virtual learning include lack of interest, age old belief into the effectiveness of chalk and talk method of teaching, lack of interest and motivation among the students to learn, inability to motivate the students to use virtual learning mode, absence of face-to-face contact, financial conditions and inadequate practice. These are all major constraints that hinder effective management of the instructional process in virtual classrooms.

The findings on research question 2 with respect to external constraints of virtual classroom management in effective instructional delivery of Business Education courses in Rivers State universities indicated that the respondents disagrees that course outline hinders virtual instructional delivery but agreed that lack of ICT accessories, poor network, unstable power supply, obsolete hardware/software applications, absence of extant regulations and noisy environment hinders instructional delivery of Business Education courses in Rivers State universities. This finding aligns with Ohiwerei, et al., (2013) who in their study revealed that the problems that hinders the use of ICT in teaching Business Education courses includes lack of computers, lack of provision of electricity in schools, lack of internet connectivity and obsolete computers *etc.* The finding also agrees with Rajab and Soma (2020) who revealed the lack of interest of authority in preparing/providing the appropriate infrastructure is a setback to virtual classroom management. *The absence/lack of all these are a major constraint and go a long way to hinder virtual classroom management in effective instructional delivery.*

Conclusion

Based on the results and findings of this research work, the researcher noted that students' lack of concentration, financial conditions, lack of interest amongst students, inability to enforce sanctions, absence to physical contact and inadequate practice by students are internal constraints of virtual classroom management in effective instructional delivery of Business Education courses in Rivers State universities and that lack of Information and Communication Technology accessories, poor network, unstable power supply, obsolete hardware/software applications, absence of extant regulations and noisy environment are external constraints of virtual classroom management that hinders effective instructional delivery of Business Education courses in Rivers State universities. These constraints if not well tackled will hinder the effective instructional delivery of Business Education courses which will in turn affect the products of the Business Education programmes.

Recommendations

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

1. Lecturers should put in place rules to guide the instructional delivery process and ensure they use the right strategy to gain students attention and building student's interest as this will help in virtual classroom management in effective instructional delivery of business Education courses.
2. Relevant authorities should ensure the necessary provision of all computer accessories and infrastructures as this will help improve virtual classroom management in effective instructional delivery of business Education courses.

REFERENCES

Adedigba, O. & Sulaiman, F. R. (2020). Influence of teachers' classroom management style on pupils' motivation for learning and academic achievement in Kwara State. I*nternational Journal of Educational Methodology*, *6*(2), 471-480.

Amaewhule, W. A. & Appah, C. N. (2019). Utilization of information and communication technology for job delivery by business educators in tertiary institutions in Rivers State. *International Journal of Innovative Information Systems & Technology Research 7(2), 34-40.*

Amesi, J. & Allison, M. T. (2020). Application of new technologies in teaching business education courses among students in tertiary institutions in rivers state. *Nigerian Journal of Business Education, 7(2), 163 – 173.*

Anekwe, J. U. (2017). Impacts of virtual classroom learning on students' of Nigerian federal and state universities. *European Journal of Research and Reflection in Educational Sciences, 5(3), 22 – 36.*

Ayeni, A. J. & Adelabu, M. A. (2012). Improving learning infrastructure and environment for sustainable quality assurance practice in secondary schools in Ondo State, South-West, Nigeria. *International Journal of Research Studies in Education*, *1*(1), 61-68.

Nicholas, A. O., Ambrose, A. A., Uyiosaifo, B. & Michael, C. A. (2015). Design and implementation of a virtual classroom system. *Proceedings of ICERI2015 Conference 16th-18th November 2015, Seville, Spain, 1176 -1181.*

Ohiwerei, F. O., Azih, N. & Okoli, B. E. (2013). Problems militating against utilization of ICT in teaching of business education in Nigerian universities. *European International Journal of Science and Technology, 2(7), 40- 48.*

Okoro, J. (2020). Perceived constraints in the application of new technologies in Business Education in South-South universities, Nigeria. *Nigerian Journal of Business Education - Volume 7(2), 491 – 503.*

Raja, A. B. & Soma, N. (2020). Teaching in virtual classroom: Challenges and opportunities. *International Journal of Engineering Applied Sciences and Technology, 5*(1), 334-337.

Rufai, M. M., Alebiosu, S. O. & Adeakin, O. A. S. (2015). A conceptual model for virtual classroom management*. International Journal of Computer Science, Engineering and Information Technology (IJCSEIT)*, *5*(1), 27-32.

Ubulom, W. J. (2006). Evaluation of undergraduate business education degree programmes in selected Nigerian universities. *Unpublished Ph.D Thesis*, Department of Science Education, Faculty of Education, University of Nigeria, Nsuka, Enugu.

Xenos, M. (2018). *The Future of Virtual Classroom: Using Existing Features to Move Beyond Traditional Classroom Limitations.* In: Auer M., Tsiatsos T. (eds) Interactive Mobile Communication Technologies and Learning, pp. 944- 951.

INSTRUCTIONAL DELIVERY AND EMPLOYABILITY OF ACCOUNTING GRADUATES

Okorogba, Lucky Joel PhD.
Department of Business Education
Faculty of Education, Ignatius AJURU University of Education, Portharcourt

Edori, D. S
Business Department, C. S. S. Mgbuoshimini, Port Harcourt, Rivers State, Nigeria
edssdern@yahoo.com

ABSTRACT

Effective instructional delivery is crucial in the preparation of graduates for employment. Therefore this study sought to find the impact of infrastructural delivery on employability of accounting graduates. The study used the survey design. The study targeted students and graduates of five government owned polytechnics and universities in Rivers State. Four likert scale questionnaire was deployed for primary data collection from ninety respondents conveniently sampled. The linear regression was the statistical toll used in analyzing the primary data collected. The study found that instructional delivery impact significantly on employability of accounting graduates with a significant value of 0.000 which is less the 0.05 benchmark for rejecting or accepting a null hypothesis. The correlation coefficient (R = 0.693) indicates a moderately strong positive impact while the coefficient of determination (R Square = 0.480) suggests that 48.0% of the variance in employability of accounting graduates can be explained by instructional delivery. The study made recommendations that institutions of higher learning should adopt instructional delivery method that will equip their students with the soft skill and other skills that enhances employability of their graduates, and also, the HOD of accounting department in collaboration with others in the department should be actively involved in accounting students internships and practicum for practical and relevant experience before graduation. The conclusion of the study is that instructional delivery has significant impact of employability of accounting graduates.

Key words: *Instructional delivery, employability, accounting graduates.*

INTRODUCTION

Accounting education at the university level in developing SEE countries has often been criticised for the inability to develop essential skills of graduates necessary for career in professional accountancy in the 21st century. With high unemployment rate, the employability of job seekers and their ability to compete globally in terms of acquired skills, knowledge, competence and attributes on a global scale is saddening (Okeke-Ezeanyanwu, et al, 2022). Graduate unemployment is one of the biggest challenges that many countries in the world, including Nigeria are faced with. Graduate employability depends on their ability to convince their employers that they have the required knowledge, skill and attitudes.

In response to evolving work patterns, the field of accounting, as the fundamental language of business, must continually progress in both its practices and the training of accounting graduates. According to Kolawole and Ogungbade (2021), academic institutions and professional accounting bodies play pivotal roles in shaping the education and supply of accountants in Nigeria. They highlight a range of career opportunities available to accounting graduates, including roles such as accounting officers, auditors, procurement managers, chief financial officers, forensic accountants, environmental accountants, financial analysts, international accounting specialists, investment analysts, business analysts, and auditors.

Mhlongo (2020) contends that many students choose to study accounting due to the perceived employability of graduates in securing immediate job placements. Tan and Fawzi (2017) demonstrate that employers increasingly prioritize skilled accounting graduates who possess not only technical expertise but also essential soft skills that contribute to workplace effectiveness. This shift underscores the growing demand for employability skills among graduates, prompting educators to employ diverse instructional methods to cultivate these competencies in accounting students.Odey and Ugwoke (2023) argue for the adaptation of instructional strategies in accounting education to meet the evolving demands of the 21st-century workplace. They emphasize the necessity of enhancing practical skills alongside theoretical knowledge to enhance graduate employability. The evolving nature of workplace skills underscores the importance of adopting new educational approaches, particularly in disciplines like accounting, to effectively prepare graduates for professional success.

According to Chibani and Jaouane (2017), approximately 22% of graduates annually struggle to secure employment, often due to deficiencies in employability skills among other factors. The National Bureau of Statistics (2021) highlights a high unemployment rate of 33.3% in Nigeria during the fourth quarter of 2020, underscoring the challenge faced by many accounting graduates in accessing suitable job opportunities. Addressing this issue requires effective instructional strategies implemented by lecturers and policymakers within the educational system. By enhancing instructional delivery, there is potential to bridge the gap and improve the employability prospects of accounting graduates significantly. Thus, the study seeks to evaluate how instructional methods impact the employability outcomes of accounting graduates.

Concept of Instructional Delivery

Jeremiah and Alamina (2017) define instructional delivery as the entirety of activities undertaken by educators to facilitate changes in learner behavior through various teaching methods and approaches. Wey-Amaewhule and Udofia (2022) elaborate that instructional delivery encompasses the effective execution of assigned tasks according to expected standards, utilizing appropriate instructional strategies and technologies to engage learners. According to Battioala (2014), instructional delivery involves the dynamic interaction between students, teachers, content, and the development of necessary knowledge, skills, and attitudes for effective learning and collaboration.

Competence in instructional delivery is crucial for educators to maximize knowledge and skill acquisition among students. Various instructional delivery models are employed to overcome challenges related to diverse student backgrounds, learning styles, and levels of understanding. Common methods utilized for teaching accounting graduates include training in accounting software, traditional face-to-face instruction, online courses, blended learning, case studies, simulation-based instruction, guest lectures, and internships and practicum.

For instance, accounting software training familiarizes graduates with industry-standard tools used in financial management. Traditional face-to-face instruction involves direct interaction between educators and students in physical classrooms, facilitating lectures, discussions, and practical exercises. Online courses leverage web-based platforms for video lectures, digital assignments, and virtual discussions, offering flexibility and accessibility. Blended learning combines both traditional and online methods, adapting especially well during periods like the Covid-19 pandemic in Nigeria. Simulation-based instruction provides virtual environments for practicing accounting skills such as software use, taxation, and auditing. Case studies use real-world scenarios to prepare graduates for practical challenges in accounting roles. Guest lectures invite industry experts to share insights and experiences directly relevant to accounting professions. Internships and practicum offer hands-on experience within accounting firms or corporate departments, supervised by experienced professionals to bridge the gap between theory and practice in real workplace settings

Concept of Employability of Accounting Graduates

Employability, as highlighted by Okeke-Ezeanyanwu et al. (2022), refers to the state of being prepared for employment through the acquisition of necessary skills. It is a critical criterion considered by employers when selecting candidates. Oluwalola (2019) defines employability as a multidimensional concept involving individual capabilities to secure and maintain fulfilling jobs within organizations, contributing effectively to societal needs. According to Ikpesu (2017), employability signifies individuals' responsibility for acquiring specific knowledge and skills demanded by employers, thereby ensuring their own welfare and societal contribution.

Maireva et al. (2021) describe employability as encompassing personal attributes and characteristics that enable job seekers to be productive in the workplace. Akinbode et al. (2020) emphasize that employability involves possessing relevant knowledge, skills, and attributes that facilitate the acquisition and retention of meaningful employment opportunities. Pool (2017) characterizes employability as a combination of personal qualities, experiences, talents, and mindfulness that enhance an individual's likelihood of securing and succeeding in a fulfilling job role.Ugbe (2018) defines employability as establishing mechanisms for students to develop a wide range of skills and opportunities that enhance academic learning and readiness for the job market. Employability skills, as Maireva et al. (2021) note, are skills acquired prior to entering the workforce, crucial for preparing students to meet diverse occupational demands after graduation. These skills, distinct from technical knowledge, are fundamental for professional growth and include core, transferable competencies essential across various professions. Okolocha and Odimmega (2019) highlight that these skills not only support recruitment efforts by employers but also empower individuals to secure and maintain employment, navigate the labor market effectively, and engage in continuous learning throughout their careers.

Theoretical Framework

The DOTS Theoretical Model is authored by Kazimierz Dabrowski, a Polish psychologist known for his work on the theory of positive disintegration. It was advanced by Law and Watts (2003) and Rae (2007) supported it.This theory suggests that psychological development occurs through a process of disintegration of existing psychological structures, followed by their reintegration at a higher level. Dabrowski proposed that individuals who experience inner conflicts and tension due to discrepancies between their actual self and their ideal self are more likely to undergo this positive disintegration, leading to personal growth and development.Relating the DOTS model to a study on instructional delivery and employability of accounting graduates involves understanding how educational experiences can foster the development of accounting students beyond mere technical skills to personal development, Higher Order Thinking, Employability, and Curriculum Design.

In summary, the DOTS Theoretical Model by Dabrowski underscores the importance of inner tension and conflict in fostering personal growth and development. Applying this to a study on instructional delivery and employability of accounting graduates suggests that effective education should not only impart technical knowledge but also stimulate students' intellectual, emotional, and ethical development, thereby enhancing their readiness for the complexities of professional accounting practice.

Empirical Review

Related studies have been undertaken in Nigeria and outside Nigeria. Some of the studies related to this study are reviewed. The study commenced it empirical research by reviewing studies undertaken in Nigeria. Odey and Ugwoke (2023) conducted a descriptive survey to explore instructional delivery needs in business education for enhancing graduate employability in Cross River State, Nigeria. They employed a researcher-developed questionnaire with a sample size of 90 participants. Utilizing independent t-tests and Pearson's correlation, they found significant differences in perceptions between graduates and lecturers regarding instructional delivery strategies. The study also established a significant relationship between effective teaching strategies and graduates' employability in business education courses.Wey-Amaewhule and Udofia (2022) investigated the impact of teachers' orientation on instructional delivery in senior secondary schools within Rivers State using a descriptive survey design.

Their sample included 36 principals and 777 teachers from 36 public schools in Port Harcourt Metropolis. Data collected through a structured questionnaire were analyzed using mean, standard deviation, and z-test statistics. Findings indicated that orientation programs significantly influenced classroom management, teaching methods, continuous assessment, and the use of instructional materials, enhancing overall instructional delivery. Kolawole and Ogungbade (2021) investigated the influence of academic curriculum on the employability of accounting graduates in Nigeria using a survey research design. Targeting staff from major audit firms and students from recognized institutions, they found that the academic curriculum significantly explained variability in accounting graduates' employability (â= .329, P = .002 < .05). The study recommended curriculum enhancements to better align with industry needs, thereby improving graduates' readiness for professional roles. Okolocha and Odimmega (2019) assessed the development of employability skills among financial accounting students in Anambra State secondary schools through a descriptive survey. Their sample of 89 teachers highlighted the effectiveness of skill-based competitions, active listening, and digital literacy in enhancing students' employability. Analysis included mean, standard deviation, and ANOVA, concluding that integrating these strategies into teaching practices was crucial for improving students' learning experiences and future employability. Wordu and Akor (2018) conducted a pure experimental study to compare instructional delivery models and their impact on academic performance in senior secondary agricultural science classes in Rivers State, Nigeria. Using a random sample of 60 students, they found that mastery learning and constructivist approaches significantly improved student performance compared to traditional lecture methods. The study recommended broader adoption of innovative instructional strategies to enhance learning outcomes. Pitan and Atiku (2017) explored the relationship between career guidance activities and undergraduates' employability in Nigerian universities using a correlational survey design. Their findings supported the significant influence of career guidance dimensions—decision-making, opportunity awareness, self-awareness, and transition learning—on students' employability. The study advocated for enhancing career guidance programs to better prepare students for successful transitions to the workforce. Okoro and Ibe (2017) surveyed directors and managers in Nigeria's South-East to identify critical office employability competencies for business education graduates. Their findings underscored the importance of both core and e-office competencies in preparing graduates for effective job performance. The study recommended incorporating these competencies into business education curricula to align with industry demands

The following studies reviewed are studies done outside Nigeria. Maireva, et al. (2021) employed a qualitative approach to address challenges faced by accounting TVET graduates in Zimbabwe's job market. They gathered data from five lecturers and 55 graduates using interviews and questionnaires from a single Polytechnic college. Economic downturns were identified as the primary cause of graduate unemployment, exacerbated by inadequate practical skills and experience. The study concluded that graduates' inability to apply theoretical knowledge in practical settings hindered their job prospects and entrepreneurial efforts due to limited access to capital. Canales (2020) explored instructional practices and their impact on student engagement and achievement among fourth- and fifth-grade teachers in Miami-Dade County Public Schools. Using a mixed-methods comparative case analysis, the study correlated instructional methods like High-Order Learning Tasks and Explicit Instruction with student engagement indicators. Findings suggested varying degrees of influence on student engagement, emphasizing the importance of effective instructional strategies in improving educational outcomes. Atanasovski, et al. (2019) surveyed students and employers to evaluate the importance of generic and technical skills in an accounting degree program and the effectiveness of current educational practices. They identified discrepancies between student and employer perceptions, emphasizing the need for curriculum improvements to better develop technical and generic skills among graduates. Employers valued skills like oral communication and ethical behavior, underscoring areas for educational enhancement. Reju and Jita (2018) investigated students' experiences with distance and online instructional delivery of undergraduate mathematics at Nigerian universities. Their mixed-methods approach revealed challenges in understanding abstract mathematics concepts and the lack of accessible tutors.

The study suggested improvements in course design and tutor availability to enhance distance and online mathematics learning experiences for students. Garwe (2017) examined initiatives to enhance graduate employability in Zimbabwe, emphasizing the role of an industry-relevant academic curriculum and practical exposure. The study recommended government support for international scholarship programs to broaden graduates' career opportunities and prepare them for success in academia and industry.

Instructional Delivery and Employability of Accounting Graduates

There are challenges faced by young job seekers in acquiring the necessary skills for securing jobs that are meaningful in the present global job market bedeviled with youth unemployment rates continues to be high disproportionately. This issue is particularly acute in Nigeria, where the overall unemployment rate is elevated, especially among young adults (Odey & Ugwoke, 2023). The importance of instructional delivery in enhancing the employability of accounting graduates cannot be overstated, as employers increasingly prioritize soft skills, ICT proficiency, generic skills, technological competence, and transferable skills in prospective hires.

Employers place significant emphasis on soft skills over technical expertise and academic achievements when evaluating new graduates, all of which can be cultivated through various instructional methods. In response to evolving job market demands, instructional delivery plays a pivotal role in equipping graduates with essential technological skills that are highly sought after by employers. Proficiency in ICT skills not only enhances employability but also broadens the spectrum of job opportunities available to new graduates.

Methodology

The research design serves as a blueprint that guides researchers in implementing methods, actions, and techniques to effectively address research questions or hypotheses and achieve study objectives.Edori and Edori (2022) defined research design as a structure or framework that is conceptualized for performing investigation within a social phenomina. This study employed a survey design to collect data using a structured questionnaire, which was well-suited to the research requirements. The target population comprised accounting graduates from three public polytechnics and universities in Rivers State (Rivers State University, Ignatius Ajuru University of Education, and University of Port Harcourt). Ninety respondents were conveniently selected to participate in the study, with data analyzed using linear regression analysis to explore relationships, and reliability tested using Cronbach Alpha. The Cronbach Alpha value 0.81 showed the reliability of the instrument.

Data Presentation

Presentation of Questionnaires Distributed and Returned

Description	No	%
Questionnaire Distributed	90	100
Questionnaire Returned	84	93.33
Questionnaires not Returned	6	6.67
Total		100

Presentation of Questionnaires Distributed and Returned by Institutions

Institution	Distribution	Returned	%
Captain Elechi Amadi Polytechnic	18	17	94.44
Ken Saro-Wiwa Polytechnic	16	14	87.50
Rivers State University	20	20	100.00
Ignatius University of Education	20	20	100.00
University of Port Harcout	16	13	81.25
Total	90	84	93.33

Presentation of Data Calculated from Raw Primary Data (The raw data collated are shown in appendix)

Question No.	1				2				3			
Instructional Delivery	76	81	36	20	68	93	50	11	148	90	28	3
Employability of Accounting Graduate	144	144	0	0	84	66	42	20	64	78	46	19

Question No.	4				5				6			
Instructional Delivery	132	138	6	2	60	93	56	10	80	66	56	14
Employability of Accounting Graduate	56	60	58	21	100	87	38	11	68	57	48	22

Question No.	7				8				9			
Instructional Delivery	72	96	50	9	152	123	8	1	148	141	0	0
Employability of Accounting Graduate	88	87	34	16	92	144	20	3	200	102	0	0

Question No.	10			
Instructional Delivery	52	84	62	12
Employability of Accounting Graduate	136	129	8	3

Data Analysis

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.693[a]	.480	.466	36.35057	.480	35.097	1	38	.000	1.751

a. Predictors: (Constant), INSDEL

b. Dependent Variable: EMPACCGRA

The Model Summary presented provides information about the regression model that was conducted. Ris the correlation coefficient between the predictor variable (INSDEL) and the dependent variable (EMPACCGRA). Here, R = 0.693, which suggests a moderately strong positive correlation between INSDEL and EMPACCGRA.The R square value (0.480) represents the coefficient of determination. It tells us the proportion of the variance in the dependent variable (EMPACCGRA) that can be explained by the independent variable (INSDEL). In this case, approximately 48.0% of the variance in EMPACCGRA can be explained by INSDEL.Theadjusted R Square valueaccount for the number of predictors in the model and the sample size. It is slightly lower than R Square (0.466), indicating the adjustment for the number of predictors.In summary, the model summary indicates that there is a significant relationship between INSDEL and EMPACCGRA, with INSDEL explaining a substantial portion of the variance in EMPACCGRA.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46376.533	1	46376.533	35.097	.000[b]
	Residual	50211.842	38	1321.364		
	Total	96588.375	39			

a. Dependent Variable: EMPACCGRA

b. Predictors: (Constant), INSDEL

From the result shown in the ANOVA table the F-statistic tests the overall significance of the regression model. It is calculated as Mean Square Regression / Mean Square Residual. Here, F = 35.097.The p-value is associated with the F-statistic. It indicates whether the regression model as a whole is significant.In this case, the p-value is 0.000, which is less than 0.05 (assuming typical significance level α = 0.05), indicating that the regression model with INSDEL as a predictor variable is significant.

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	16.513	9.306		1.774	.084		
	INSDEL	.716	.121	.693	5.924	.000	1.000	1.000

a. Dependent Variable: EMPACCGRA

The Coefficients provides information about the coefficients of the regression model, where EMPACCGRA is the dependent variable and INSDEL is the predictor variable. The t-value (5.924) is the ratio of the coefficient estimate to its standard error indicating the significance of the coefficient estimate for INSDEL.The p-value associated with the t-test for INSDEL. A p-value less than 0.05 indicate that the coefficient estimate for INSDEL is significant.The Collinearity Statisticsshows that both the tolerance and VIF for INSDEL are 1.000, indicating no issues with multicollinearity.

Discussion of Findings

The correlation coefficient (R = 0.693) indicates a moderately strong positive relationship between instructional delivery (INSDEL) and employability of accounting graduates (EMPCCGRA). It portrays a directional movement that is the same for both variables. The coefficient of determination (R Square = 0.480) suggests that 48.0% of the variance in EMPACCGRA can be explained by INSDEL. That is, the remaining 52.0% of the variance in EMPACCGRA cannot be explained by INSDEL but other factors outside the model. The regression model (which includes only INSDEL as a predictor) is significant (Sig. F Change = 0.000), indicating that the relationship between INSDEL and EMPACCGRA is not likely due to

random chance.The coefficient of 0.714 indicates that for every one unit increase in INSDEL, EMPACCGRA is expected to increase by 0.716 units, holding all other variables constant.

The finding of the study shows that INSDEL has significant impact EMPCCGRA. The finding is in tandem with the assertion of Akinbode et al. (2020) that emphasised that employability involves possessing relevant knowledge, skills, and attributes that facilitate the acquisition and retention of meaningful employment opportunities and the finding of Odey and Ugwoke (2023) that established a significant relationship between effective teaching strategies and graduates' employability in business education courses.

Conclusion and Recommendations

The study had a single aim of investigating the impact of instructional delivery and employability of accounting graduate. After analyzing the data collected using the linear regression, the study concluded that instructional delivery has significant impact on employability of accounting graduates. The significant impact is positive and moderately strong.

The recommendation made by the study is that institutions of learning should adopt instructional delivery method that will equip their students with the soft skill and other skills that enhances employability of their graduates. Also, the HOD of accounting department in collaboration with others in the department should be actively involved in accounting students internships and practicum for practical and relevant experience before graduation.

REFERENCES

Atanasovski, A., Trpeska, M., Lazarevska, Z. B. (2019). Accounting students' and employers' perceptions on employability skills in the SEE country.European Financial and Accounting Journal,13(3), 55-72,

Battioala, W. (2014). The micro-politics of teacher induction. A narrative- biographical study on teacher socialization. Teaching and Teacher Education,18(4), 105-120.

Canales, Y. (2020). The relationship between instructional delivery and student engagement in selectedclassrooms: A cross case analysis. Dissertations, Theses, and Masters Projects. http://dx.doi.org/10.25774/w4-z43v-zg57

Edori, V. D. & Edori D. S (2022). Employee development and profitability of construction companies in Rivers State, Nigeria. Academic Journal of Accounting and business Management, 3(4), 1-14

Garwe,E.C. (2017). Holistic initiatives for enhancing graduate employability in Zimbabwe.Higher Educative Journal 3(2),14-21.

Ikpesu, C. (2017). Globalizing business education curriculum experiences in Nigeria higher education for enhanced students' employability. European Journal of Business and Innovation Research, 5(5), 47-57.

Jeremiah, S. & Alamina, J.I. (2017).Curriculum Implementation and Instruction: Pedagogical Perspective. Cel-Bez Publishing Company Nigeria Ltd.

Kolawole, A. D. &Ogungbade, O. I. (2021). Academic curriculum and employability of accounting graduates in Nigeria. OSR Journal of Business and Management (IOSR-JBM), 23(1), 30-36

Law, B. & Watts, A. G. (2003). The DOTS Analysis: Original version. http://hihohiho.com/memory/cafdots.pdf

Maireva, C, Muza, C & Beans, H. (2021). Employability of accounting TVET graduates: A case of onepolytechnic college in Zimbabwe.East African Journal of Education and Social Sciences (EAJESS), 2(2), 97-107

Mhlongo, F. (2020). Pervasive skills and accounting graduates' employment prospects: Are South African employers calling for pervasive skills when recruiting? Journal of Education, 80, 50 – 71.

National Bureau of Statistics. (2021). Labor force statistics: Unemployment and underemployment report. https://www.nigerianstat.gov.ng/pdfuploads/Q4_2020_LFS.pdfational university commission (2020)thisdaylive.com/index.php/2020/08/14/unemployment-rate-rise-to-27-1/friday14august.2020S

Odey, C. A. & Ugwoke, E. O. (2023). needs for valuable instructional delivery, training and learning of business education regarding employability of graduate in Cross River State, Nigeria.OSR Journal of Research & Method in Education (IOSR-JRME), 13(3), 52-58.

Okeke-EzeanyanwJ. A., Makwe, F. &Okafor, M.O (2022). Business education for employability and global competitiveness in the new normal COOU.Journal of Educational Research, 7(1),109 – 123.

Okolocha, C. C &Odimmega, C. G. (2019). Employability skills development of financial accounting students in secondary schools in Anambra State, Nigerian. Journal of Business Education (NIGJBED), (1), 80-93.

Okoro, W.A & Ibe, C.M (2017). Employability competencies needed by business education graduates for effective jobperformance in Nigeria. Journal of Business Education,3(2),12-39.

Oluwalola, F. K. (2018). Students' perceptions of teachers' attitude to teaching of business studies in junior secondary schools in Lagelulocal government, Oyo state.Unilorin Journal of Lifelong Education 2(2), 75-83.

Rae, D (2007). Connecting enterprise and graduate employability: Challenges to the higher education culture and curriculum? Education + training, 49(8/9), 605–619.

Reju C, O. &Jita, L. C. (2018). Instructional delivery and students' experiences with distance and online learning of undergraduate mathematics in Nigeria. International Review of Research in Open and Distributed Learning, 19(2), 111-125.

Tan, L. M., & Fawzi, L. (2017). Employability skills required of accountants. SHS Web of Conferences 34, 06001. http://doi.org/10.1051/shsconf/20173406001.

Wey-Amaewhule, B. &Udofia, A. E. A (2022). Influence of teachers' orientation on instructional delivery in publicsenior secondary schools in Rivers State. International Journal of Research Publication and Reviews, 3(12), 2538-2546.

Wordu, H. & Akor, V. O. (2018). Instructional delivery models and academic performance ofagricultural science students in senior secondary schools in Rivers State, Nigeria. International Journal of Education and Evaluation, 4(9), 72-82

APPLICATION OF ARTIFICIAL INTELLIGENCE IN EDUCATION FOR IMPROVED LEARNING AND THE SUBJECT OF ETHICS

Ibitoroko, BEN-GEORGE
george.ibi@ust.edu.ng
Department of Business Education,
Faculty of Education,
Rivers State University

Boma Isabella, DAMBO
dambo.boma@ust.edu.ng
Department of Business Education,
Faculty of Education,
Rivers State University

ABSTRACT

This article explored the complex and sophisticated realm of Artificial Intelligence (AI) applications in education, exploring their potentials to provide solutions for improving teaching and learning experiences for teachers and students, as well as the ethical concerns they raise within the educational sphere. This study reviewed complementary approaches that AI uses to improve academic activities, intelligent content distribution, through AI enabled adaptive learning platforms such as: ChatGPT, Grammarly Google Bard, Quillbot, etc. In addition, the study highlighted some skills necessary for the up-skilling of teachers and learners in readiness for the adoption of AI in education and delved into topical concerns about the ethical complexities surrounding the use of AI in education, including issues of data privacy, biases in AI algorithms and the potential attrition of teachers' roles. The study provided roadmaps and guidelines to safe adoption of AI in education Institutions and suggested approaches to striking a balance between safely harnessing the power of AI for improved learning and protecting ethical principles for the use of AI in the field of education.

Keywords: *Artificial Intelligence (AI), Generative AI, Technological Advancement, AI Inclusion, AI Applications for Education, Disruptive technology, Improved Learning, Ethics in AI.*

INTRODUCTION

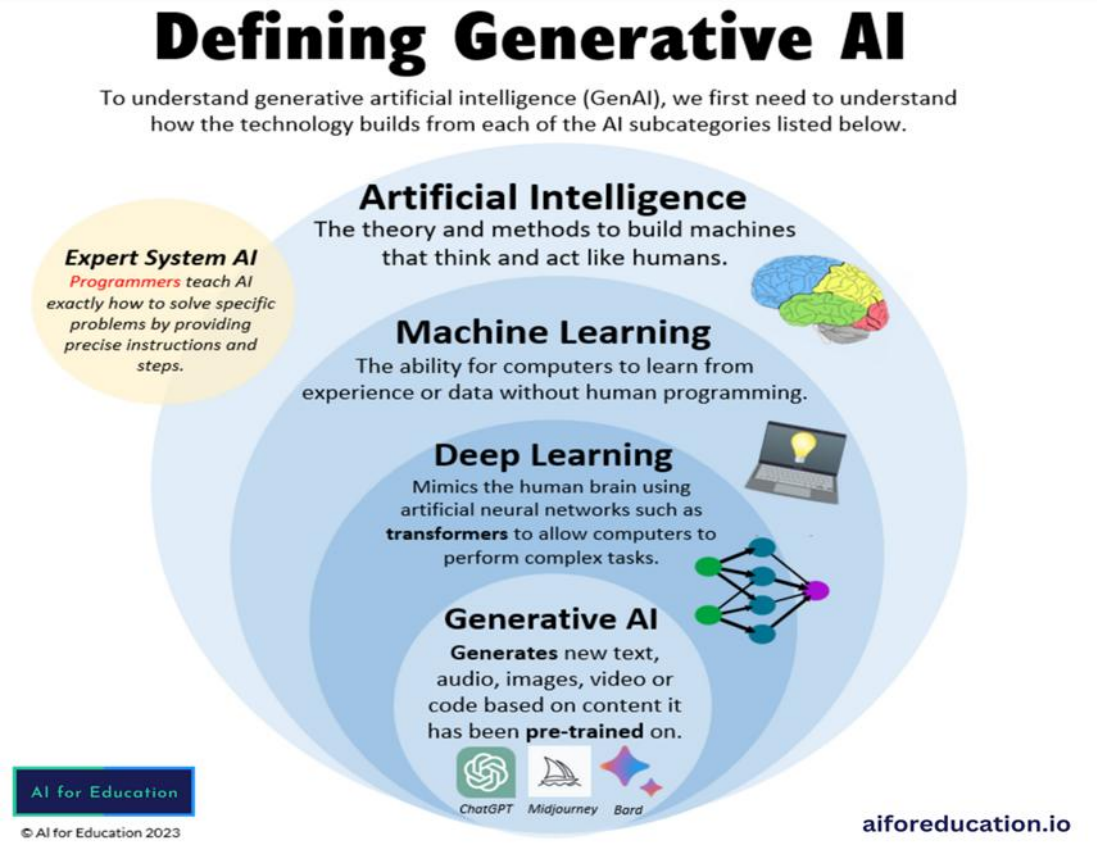
Traditional teaching methods as mentioned by Beder (2022) may cause students nowadays to lose focus, and disengage from learning activities, rather the use of Artificial Intelligence AI and other digital realities present learners with a more holistic learning experience since students can engage and interact with these technologies in a seemingly realistic way. More so, AI helps to personalize the experience for each unique user by analyzing users' preferences, behavior, biometrics personalized environments that adapt to users' needs and preferences. By using AI-powered tools and strategies, educators can improve management of administrative tasks, streamline work activities, personalize learning, improve student outcomes, and better prepare students for success in the digital era.

Artificial Intelligence (AI) is a locus where people in diverse fields of work and learning draw the potential to enhance work and learning. AI belongs to the type of technology commonly described as disruptive technology, although Obe, Higton, Beard, Birkin, Corley & Milner (2019) consider technologies generally to be broadly expected to have disruptive consequences for workers. Hardman (2023) thinks of AI as a process where humans teach computers to do things that normally require human intelligence: things such as recognizing images, understanding speech, responding to instructions or making decisions. They do this by training machines to identify and reproduce structural patterns. Simply put, Artificial Intelligence is the replication of human intelligence in machines to make them think and act like humans. They are artificial in the sense that they are made by man.

AI however, has long been around us in the world, even in the field of education but had not been explored as much as it is today. According to Hardman (2023) AI-powered educational technologies and designs have existed for well over 60 years. Hardman wrote that though it is not unforgiveable to think that AI in education is an uncharted path, she recognized that the same Machine Learning technology and expertise that enabled computer scientists to train computers to understand differential characteristics has been used and continues to be used to design and deliver education for over 60 years. Modern day Adoption of AI for teaching is what Beck, Stern, Haugsjaa (1996) as far back as the late 90s described as the use of Intelligent Tutoring systems (ITSs) to offer considerable flexibility in presenting materials and a better response to peculiar students' needs by representing pedagogical decisions about how to teach as well as information about the learner. The authors wrote that ITSs have proven to be highly effective at increasing students' performance and motivation.

To provide a clear and concise insight on the concepts of VR, AR, MR and AI, the following infographic called Generative AI Explainer by AI for Education (2023) will attempt to define Generative AI in the larger context of the field of Artificial Intelligence.

Figure 1: Generative AI Explainer



Source: AI for Education (2023) https://www.aiforeducation.io/ai-resources/generative-ai-explainer

Artificial Intelligence in Education

This section attempts to provide insights and answer the question of what teaching and learning problems can be solved using AI. Abounding research has treated the subject of teacher burnouts due to overwhelming work pressures and an incessant demand to integrate new materials and an exhaustive attempt to meet the needs of a wide range of students over a protracted cycle.

To this end, D'Orio (2018) reported that one in ten teachers leave the profession after their first year and to him, it is not surprising. Limna, Jakwatanatham, Siripipattanakul, Kaewpuang and Sriboonruang (2022) asserted that Artificial Intelligence is a strategic and critical factor in educational development and is increasingly being accepted as a digital assistant for teaching and learning, to assist teachers, learners and researchers by providing access to a wide range of learning materials based on their specific learning needs and subjects of interest. Among the opportunities obtainable in educational AI technologies are innovation, collaboration, and transformation, including new pedagogies, models, platforms, and ecosystems (Linkedin, (2023). Srivastava, (2023) on the other hand highlighted the problems that educational AI technology can solve by expanding the possibilities of AI and classifying them into what he described as ten most popular AI in education. Examples where AI technology is transforming learning and education are:

1. Personalized Learning

Every student adapts to knowledge differently; therefore, conventional learning styles have proved inadequate in achieving the concept of customized learning for every individual student. AI in education on the other hand, ensures that educational software is personalized for every individual, with supporting technologies that back up how each student perceives various lessons and adapts to that process to minimize the burden.

2. Task Automation

AI creates an automated and productive environment along with creating a tailored teaching process, AI solutions for education can take up the task of student assessment by grading tests, organizing research papers, keeping records, making presentations and notes, and managing other administrative tasks.

3. Smart Content Creation

AI helps teachers and researchers create innovative content and are convenient for use in complex subjects and learning. Some examples of AI smart content creation include:

Information visualization

Apart from laboratory practicals, traditional teaching methods, hardly provide visual features that could enhance comprehension, whereas, AI smart content creation increases real-life experience through graphical web-based learning environments.

Digital lesson generation

AI applications generate bit-size and low-storage study materials in digital format which teachers and students can leverage on, without taking up much space in the device. More so, these materials can be accessed from any device, so you do not have to worry about remote learning. To quote a real-life example, Appinventiv (2023) developed an online learning platform, Gurushala, that educates millions of students by providing free study material and other interactive forms of instruction.

Frequent content updates

AI allows users to create and update information frequently to keep lessons up-to-date with time. The users also get notified whenever new information is added, which helps prepare them for upcoming tasks.

4. Adaptable Access

AI is adaptive and provides personalized content and recommendations for users, based on each unique user's progress rate and support features like multilingual support which is; translating information into different languages, making it convenient for different natives to teach and learn. AI also plays a vital role in teaching visually or hearing-impaired users.

5. Determining Classroom Vulnerabilities

AI supports the experts by improvising the teaching-learning process for individuals. The belief that AI will soon replace the human touch in learning might be the case for other industries but not the education sector. AI and education go hand-in-hand complementing manual and virtual teaching.

6. Closing the Skill Gap

Up-skilling students are a valuable solution for businesses struggling with gaps in technology. AI powered software and application development solutions deliver widely available and affordable opportunities for not only students but teachers and school administrators to up-skill.

7. Customized Data-Based Feedback

Feedback is a crucial ingredient when it comes to designing learning experiences, whether in a workplace or classroom. The fundamental difference between effective teaching and merely giving out content is that effective teaching includes giving continuous feedback. It's essential that feedback comes from a trusted source; therefore, AI in education analyzes and determines work reports based on everyday data.

8. 24*7 Assistance with Conversational AI.

Chatbots are an increasingly familiar example of how AI in education consumes data to inform and provide assistance accordingly. This benefits both business professionals and teachers for user engagement in customized learning. Conversational AI in education delivers intelligent tutoring by closely observing the content consumption pattern and catering to their needs accordingly.

9. Secure and Decentralized Learning Systems

The education industry is delivering rapid innovations with AI but is often held back by issues like data protection, alterable data accessibility, outdated certification processes, etc. Amidst all these challenges, AI-based decentralized solutions can bring a positive technical revolution to the education sector.

10. AI in Examinations

AI software systems can be actively used in examinations and interviews to help detect suspicious behavior and alert the supervisor. The AI programs keep track of each individual through web cameras, microphones, and web browsers and perform a keystroke analysis where any movement alerts the system. An AI-based software and application solution can be beneficial in more ways than one can imagine. This is why Educational Technology startups and enterprises are attracted to AI technology solutions that successfully address the wide range of users' pain points. Therefore, if you are a part of the professional education sector, it's officially time to integrate AI solutions into your education business.

Adaptation to AI in Education

As the capabilities of AI continue to expand in the world of education, the technology will continue also to influence how students learn, how teachers work, and eventually how the education system is structured (Bailey, 2023). Concerns have been raised about the potential of AI to infringe on privacy and personal data. As AI algorithms become more advanced at analyzing and interpreting data, there is a risk that they could collect and use users' personal data in ways that users may not be aware of or consent to.

Predictions about the emergence of new technologies which have the potential to act as humans, disrupt human activities, strip humans of their jobs and is in-fact feared to have the capacity in the future to depend greatly on humanoids; a term used to refer to inanimate entities with either human forms or characteristics programmed to learn and think like humans. Artificial Intelligence and Immersive Technologies such as Deep Learning (DL), Machine Learning (ML), Virtual Realities (VR), Augmented Realities (AR), Mixed Realities (MR), Extended Realities (XR) and Big Data Analytics according to Patil and Pradhan (2020) and in agreement with Oktra (2020), are poised for continued adoption in businesses and will become increasingly optimized for a wide range of utilities across the globe and may greatly affect business decisions, lifestyle and education.

Another subtle risk factor is the capacity of AI to replace human creativity if the algorithms become well advanced and automated; there is a risk that they could replace human workers, potentially leading to job displacement and other economic and social consequences (AIContentfy Team, 2023). This, in my opinion is a contributory reason teachers tend to be draggy towards the subject of adoption of AI in the education system.

Although problems such as fear of technology, unavailability of technological gadgets and paucity of funds for subscriptions to run software that support technology and AI inclusion in the education process have been severally revealed, Ben-George (2021) believed that employees are likely to adapt to developing technologies as the adoption of one technology type may lead to the desire or an intention to use its coexistent sub technology. This likelihood is explained in Coccia's (2019) theory of Technological Parasitism. This is because most technologies are either complementary, interconnected, more advanced, substitutes others, solves the lacunas of previous technologies, is required by policy or regulatory authorities, peer pressure, upgraded versions, or sheer consumerism. For instance, a chatbot like ChatGPT can create text on any subject you ask of it but lacks the capacity to generate graphic content. Therefore, text and ideas generated from such chatbots may be used to create graphic content; Images or videos on a separate application like wave.video or Google Bard. Another example is that of interconnectivity: take Apple, Samsung, or Huawei phones and tablets for example; ownership of one these may lead one to the desire to own a smart watch from same company.

However, the fear of loss of one's job is the most terrifying, judging by the pace at which technological evolutions are rolling out. This fear no doubt is valid and does not only exist in the realm of education, but fields of Science, Technology, Engineering, Agriculture, Management, GeoScience, Human Resources Management, etc., will all bear the brunt because whether teachers want to use AI technologies or not, students are using them and would soon outsmart their teachers. Adepoju (2023) however made an attempt to ease this threatening reality by stating that although AI would change the role of teachers, take away knowledge base and assessment, smart teachers will maintain their jobs if they perceive AI as an instrument to augment their capabilities. They will become facilitators of the social and emotional aspects of learning using AI, which is why teachers must up-skill to stay relevant in the not so far future. The assertion of University of San Diego (2023), an AI industry thought leader and education partner summarizes the question about whether or not AI in education is sustainable: Despite the continuous and extensive debate over the pros and cons of deploying AI technology in the field of education, including the concerns about depersonalization and the ethical concerns of stakeholders, there is an emerging consensus that the exciting range of current and future benefits will carry the day.

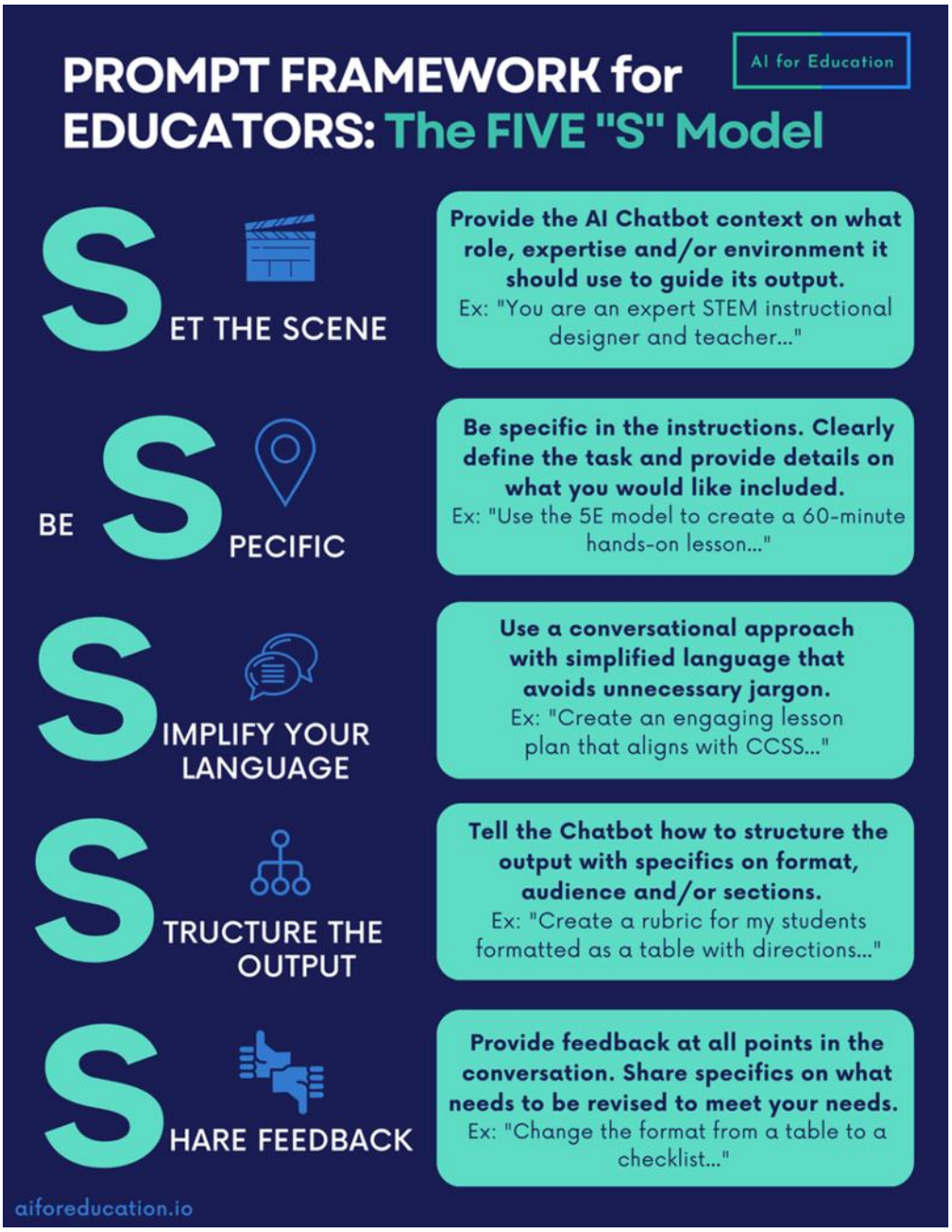
To make this overwhelming AI adoption pathway smooth, the study adopts the following models and guides and roadmaps created by AI For Education (2023): a 4-step AI Adoption Roadmap for Education Institutions, a Prompt Framework for Educators which is a Five "S" Model for Educators, a Prompt Framework for Students, also a Five "S" Model for students, a Guide to Developing an AI Policy for Schools and a Student Guide for AI Use. The roadmap and models and guides are as shown below:

Figure2: AI Adoption Roadmap for Education Institutions

Source: AI for Education (2023) https://www.aiforeducation.io/ai-resources/ai-adoption-roadmap-for-education-institutions

The AI Adoption Roadmap for Education Institutions focuses on how to establish a strong foundation for developing an AI policy, develop workers, update educational materials, train students and the larger school community, and continuously review implementation plan and progress.

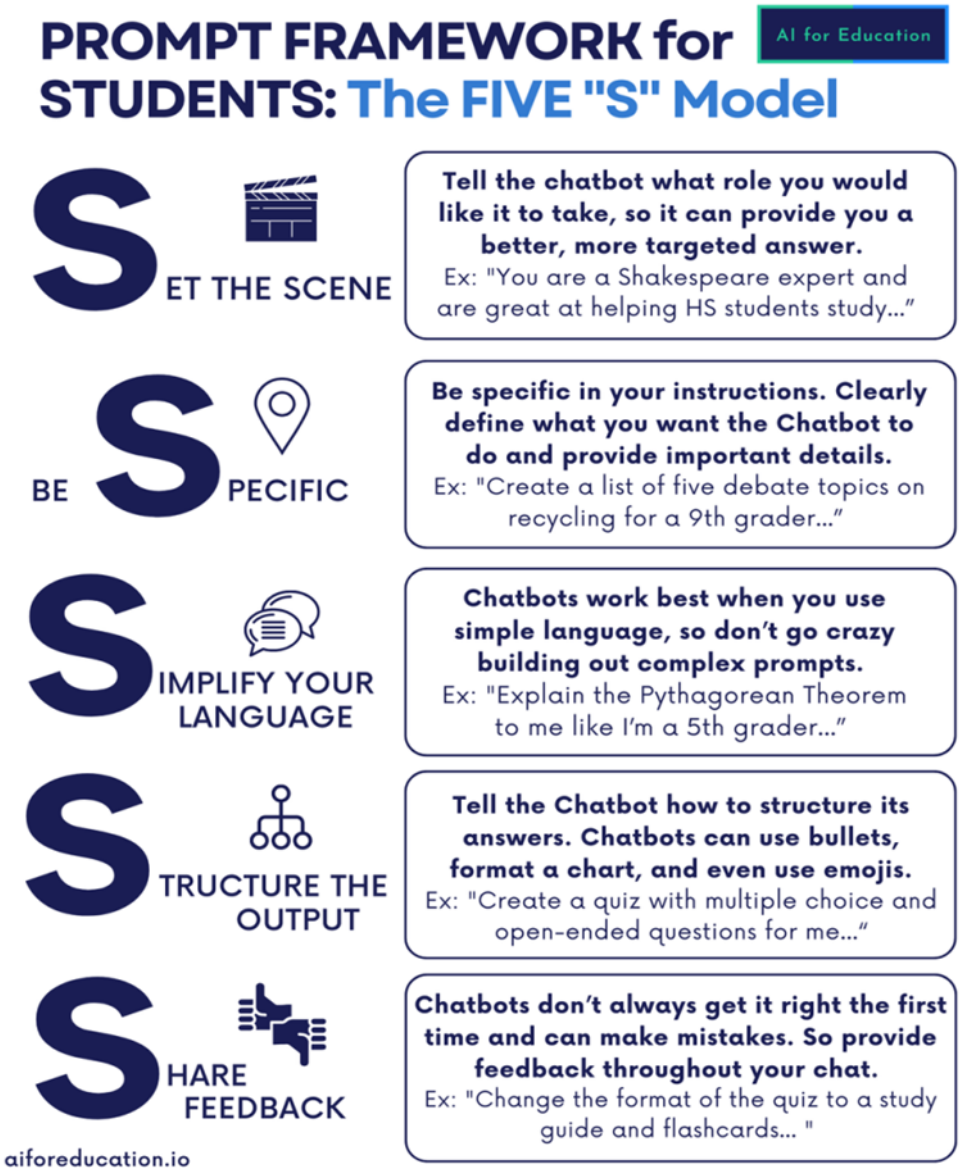
Figure 3: Prompt Framework for Educators: Five "S" Model for Educators



Source: AI for Education (2023) https://www.aiforeducation.io/ai-resources/the-five-s-model

The Five "S" Model for Educators can help educators develop skills required to prompt AI applications to prepare lesson plans, saving hours on administrative tasks, or brainstorming ideas for personalized learning. This framework will help educators to get the most out of search prompts.

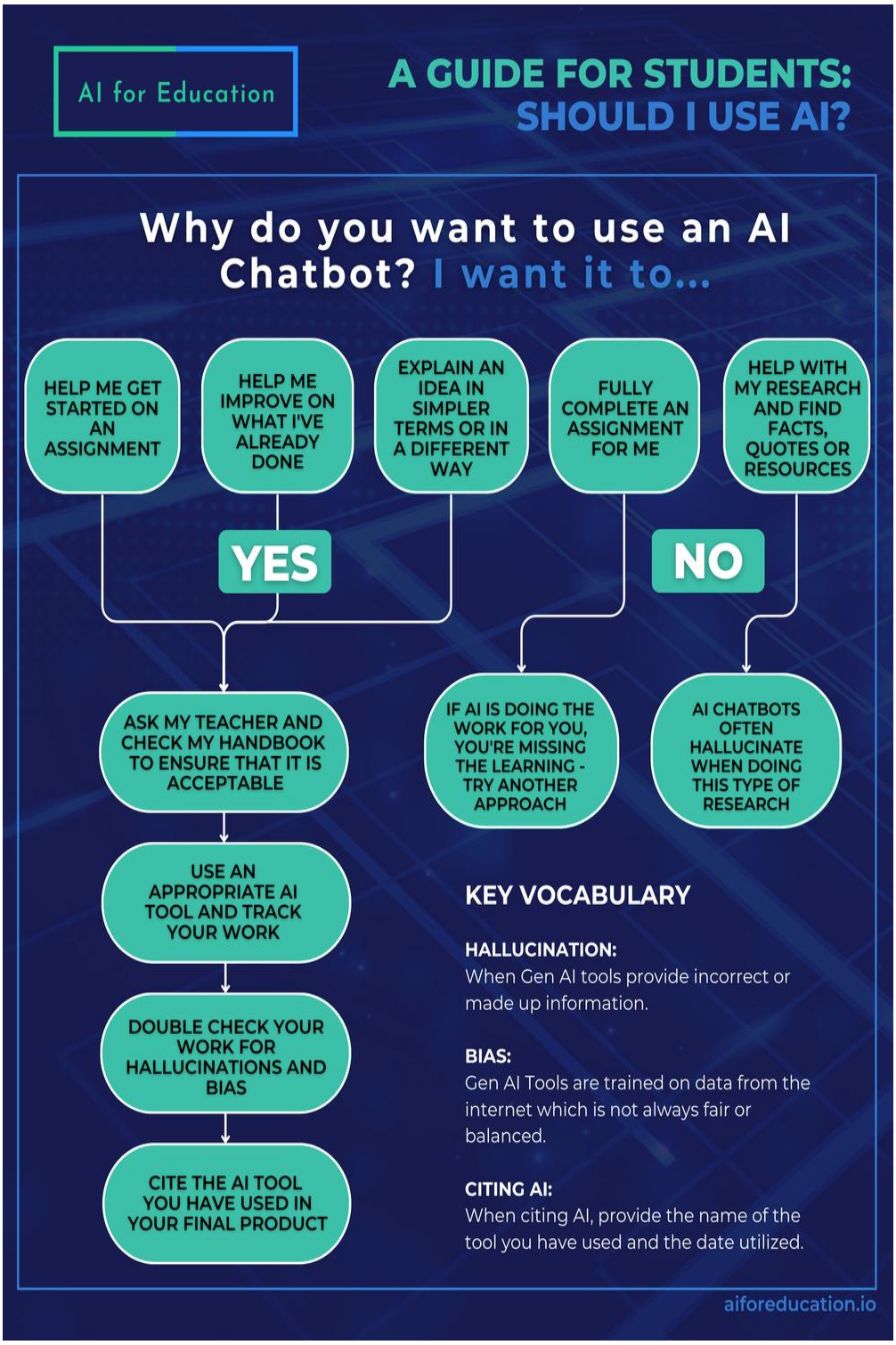
4: Prompt Framework for Students: Five "S" Model for Students



Source: AI for Education (2023) https://www.aiforeducation.io/ai-resources/the-five-s-model-students

The Five "S" Model for students can help students can help students engage with AI responsibly, to help them study, brainstorm, query ideas, or have concepts explained in ways that are personalized to them and work best for them. AI for Education further provided a self-check guide for students which provides a direction for students on when to and when not to use AI for academic purposes.

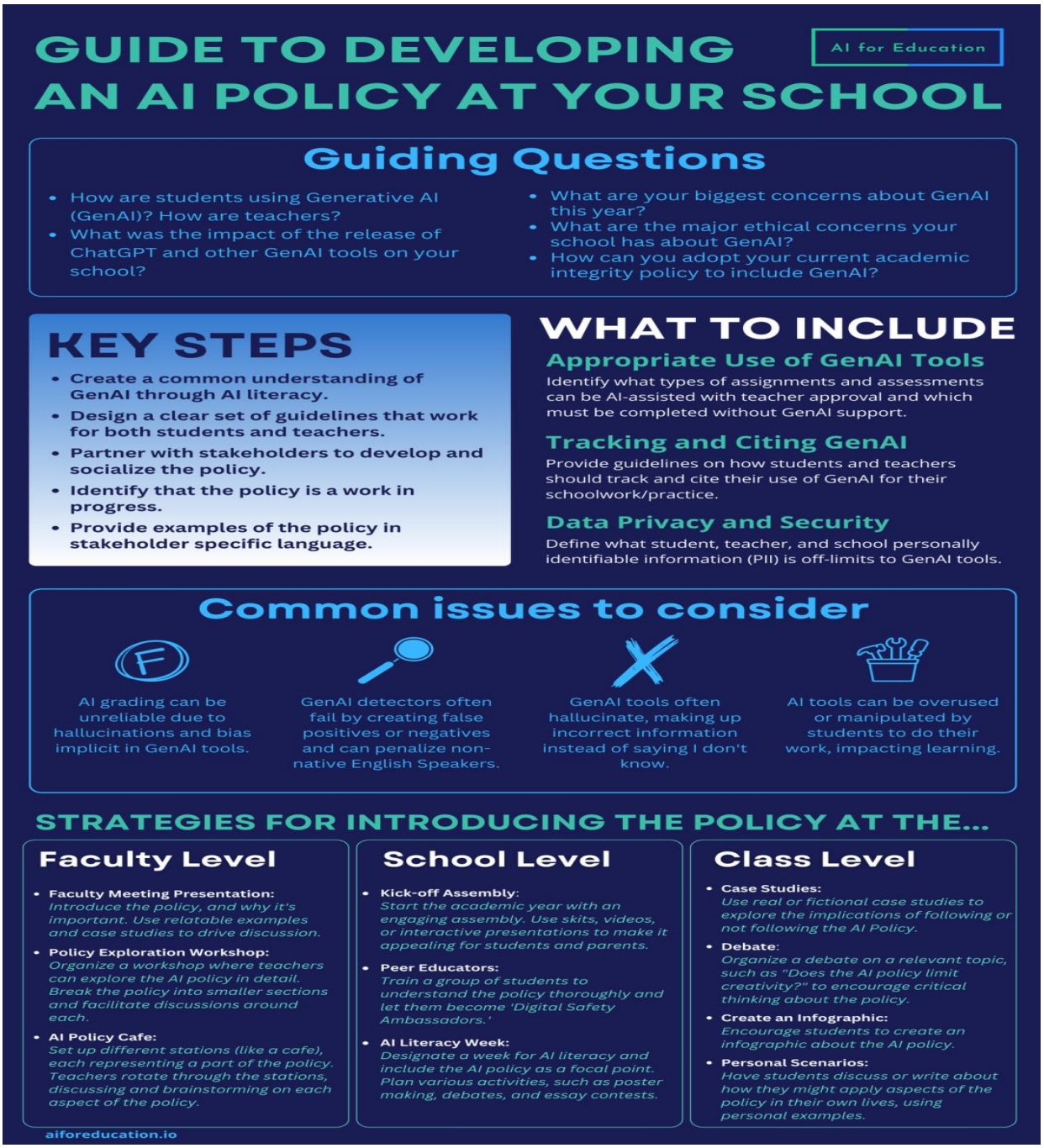
Figure 5: A Guide for Students



Source: AI for Education (2023) https://www.aiforeducation.io/ai-resources/student-guide-ai-use

AI for Education warns that although AI-powered tools promise to enhance learning, they do not come without risks but this quick guide infographic promises to help students understand how and when to use these tools wisely and responsibly.

Figure 6: A Guide to Developing an AI Policy for Schools



Source: AI for Education (2023) https://www.aiforeducation.io/ai-resources/ai-policy-guide-school

The AI Policy Guide for Schools reveals the most important steps to take while considering AI adoption in schools. These approaches help to develop a practical AI academic integrity policy which aims to provide guidance to school leaders looking to start this critical work.

What skills are recommended to help teachers prepare for AI application in teaching?

As forecasted by Adepoju (2023), AI will see the end of thousands of jobs but will create new jobs which will demand up-skilling from individuals to remain gainfully employed. Adepoju in fact mentioned that jobs that would be available in 2029 have not yet been invented. To get a full grasp of what skills would be needed for role playing either as teacher or student using AI, it is best to highlight some of the most popular AI applications useable in the education sector especially at a personal level and what they can do. They include:

ChatGPT

ChatGPT is a high speed generative text-based openAI tool which provides answers to human prompts in real time. The acronym GPT stands for Generative Pre-trained Transformer, while the word chat typically defines its design to engage in conversations with users by text. Two versions are available: ChatGPT3.5 is a free version trained according to Bailey (2023) up to 2021, while ChatGPT4.0 is a latest version of the AI tool said to be faster and more accurate than version 3.5. It evidently has advanced capabilities to analyze data, create charts, perform mathematical functions, interpret codes, and of course it is not free. Both versions can be accessed at https://chat.openai.com/.

Grammarly

Grammarly is also a generative AI tool that provides real time communication and writing assistance to its users. It has the capacity to write, rewrite, paraphrase content. Grammarly have features which can change the tone of your text depending on whether you want to sound official academic, legalese or plain simple. More so, it also has features for referencing, plagiarism and similarity index tests. This grammarly (2023) feature will highlight passages that have not been cited properly and even provide the materials to help you provide the right credits for sources. Grammarly may be accessed at https://www.grammarly.com/.

Google Bard

Bard, as it is called for short is a conversational generative artificial intelligence chatbot developed by Google that helps you imagine more possibilities in less time (Google, 2023). In the case of Bard, it has features that support images and infographic materials. This means that one could simply upload an image to bard and get all the information desired about that image. Bard could also generate images when concerning any subject when prompted to do so. This AI tool can be accessed at https://bard.google.com/.

Quillbot

QuillBot is an artificial intelligence-powered writing and paraphrasing application that aimed at assisting users to enhance quality of written work. It includes a number of features to help users write clear, well-structured content with primary features and attributes that help users to select their word choice through their pool of synonyms, paraphrase, check grammar style: academic, formal, creative, etc. it allows users to achieve fluency, customize and summarize contents to suit their purposes.

In fact, host of other AI enabled applications abound and cannot be exhausted in a single piece of article such as this. Other applications which may be used by teachers and students to enhance learning include: Canva.com, Scribber, Socratic.org, GeoGebra, wave.video, Animaker, Doodly, Copy.ai, Conversation.ai,

Writesonic, Duolingo, Turnitin, etc

Chat GPT, Grammarly Google bard, Spinbot, and other generative AI tools with chat features have amazing conversations like a human, responding to your prompts with feedbacks suggestive of an understanding friend. While writing this paper, an experiment was carried out with ChatGPT about a person who had been betrayed by a friend and was feeling depressed. ChatGPT provided a feedback that sounded like a real person was speaking. It provided steps on how to overcome depression and gave advice.

Further prompts presented feedbacks like a listening friend. Here's why many people are now talking to chatbots about their personal concerns like a friend would do leaving digital footprints that worries experts, leading to advocacies against the ethical problems that may protract from high dependency and trust of AI tools. They warn that AI sometimes hallucinates if it cannot provide answers to prompts and instead assumes other things may be the answers that you need.

Skills required for Adoption of AI

For players in the education sector to adopt and adapt to the inclusion of AI in education campaign, there is need for a continuous advocacy for open hearing and training and understanding of AI systems through free and accessible data literacy, digital skills & AI ethics training and media literacy. Some major but not so complicated skills required for adption of AI include:

1. Ability to sign-up on AI applications using Google, Linkedin, Facebook, etc.
2. Ability to develop popular and attractive keywords and phrases
3. Ability to prompt AI systems to provide personalized feedbacks
4. Familiarity with ethical considerations associated with the use of AI
5. Ability to maintain creativity while applying support from AI systems

The Subject of Ethics on the Use of Artificial Intelligence in Education

The possibilities of AI when critically thought about scares nearly everyone. Lynch (2018) asserts that the future of AI scares him just as much as it scares even Elon Musk, the CEO of Tesla Incorporated, a man who talks about self-driving cars and is well versed on the subject of AI; and one whom we ought to give hearing. Musk according to Lynch had begun a billion-dollar campaign against the advancement of AI, especially in education. Edgerton and Wasson (2023) on the other hand revealed that Musk, at a closed door meeting with US Senators and World Technology Leaders warned of the risks of deeper AI and called for a regulatory structure for AI. Musk's reference to the term “Deeper AI” was understood to be referring to Deep AI: a category of artificial intelligence which teaches computers to process data in a way that imitates the human brain. This type of learning is otherwise referred to as deep learning.

Rapid technological advancements in Artificial Intelligence according to UNESCO (2023a) are transforming disciplines, economies, and industries, and challenging ideas about what it means to be human. Suffice it to say that advancements in AI are shaking, reshaping and shifting the landscape of not only fields of science, medicine and entertainment but also education in nations. Adepoju (2023) mentioned in a virtual classroom on Microsoft Teams that AI has been identified as the 4th digital revolution of the world and foretold a time in the future when humans would become partly human and partly machine: a situation where chips would be implanted in humans, which could help the blind to see and the deaf to hear. UNESCO (2023b) has however raised concerns about the rapid technological developments inevitably springing multiple risks and challenges, which have so far overtaken policy debates and regulatory frameworks. UNESCO therefore affirmed its inherent commitment to see a human-centred approach to AI, in addressing current inequalities regarding access to knowledge, research and the diversity of cultural expressions and to ensure AI does not widen the technological divides within and between countries while supporting Member States in harnessing the potential of AI technologies for achieving the Education 2030 Agenda. It is ensuring that the application of AI in educational contexts is guided by the core principles of inclusion and equity. Bailey's (2023) also attempted to provide a respite to the situation when he said that technology does not revolutionize education, rather humans do. It is humans who create education systems and institutions and it is the leaders of those systems who decide which tools to use and how to use them.

Educational efforts highlighting the risks of malicious interruptions to AI might, according to Borenstein and Howard (2021) be beneficial for AI integration in education and could foster a professional mindset for the next generations of AI developers. Guided by the aim of nurturing a professional mindset of future tech developers in the AI community, Borenstein and Howard proposed three elements that could help familiarize students with the emerging ethical challenges of AI.

They are:

1. Teaching the ethical design of AI algorithms; this should include but not be limited to Fairness, Ethics, Accountability, and Transparency (FEAT) considerations. Learning about the importance of participatory design could also be an important lesson.

2. Incorporating fundamental concepts of data science and the ethics of data acquisition; using real-world data sets that require students to address privacy, fairness, and legal issues while developing AI solutions.

3. Offering ethics-related lessons in multiple ways and at multiple times. Including ethics across the curriculum as a model for putting this into practice.

Conclusion

Inclusion of Artificial intelligence technologies in education undoubtedly has enormous benefits which cannot be overstated but also has its attendant negative effects on the education system as well. Therefore, it is critical for education stakeholders to prioritize artificial intelligence in education but develop and implement deliberate strategies to leverage on the opportunities and expectations of teachers and students, through AI technologies, while addressing the challenges embedded.

Suggestions

The following are made based on the matters discussed in this paper:

1. For education institutions to become key players rather than spectators in a fast advancing world of technological evolutions, models and roadmaps based on the peculiarities of each education institution leading to the adoption of IA technologies should be developed and implemented to improve teaching and learning in schools.
2. Every possible AI technology in education cannot be adopted. Therefore, institutions are encouraged to consider developing AI integration policies on what and how AI can be used depending on their needs.
3. Teachers are by all means encouraged to begin exploring AI applications suitable for teaching different subjects, to improve information base and provide guidance for students on the use of such applications.
4. While applying AI to the teaching and learning process, usage of AI systems must not exceed what is required to achieve the main objective of its use, which is primarily to improve learning.

REFERENCES

Adepoju, F. (2023). Application of artificial intelligence in teaching and learning. [Master class on Microsoft Teams e-classroom for academics, proprietors and school administrators 01].

AIContentfy Team. (2023). The role of AI in content creation for immersive technologies. Retrieved September 11, 2023, from https://aicontentfy.com/en/blog/role-of-ai-in-content-creation-for-immersive-technologies#:~:text=AI%20can%20also%20be%20used, the%20user's%20needs%20and%20preferences.

Appinventiv. (2023). How Appinventiv helped Gurushala in its mission? Retrieved September 30, 2023, https://appinventiv.com/portfolio/gurushala-online-learning-platform/.

Bailey, J. (2023). AI in Education: The leap into a new era of machine intelligence carries risks and challenges, but also plenty of promise. Education Next, 23(4), 28-35.

Beck, J. Stern, M. & Haugsjaa, E. (1996). Applications of AI in Education. Retrieved September 3, 2023, from https://dl.acm.org/doi/fullHtml/10. 1145/332148.332153.

Beder, C. (2022). Digital realities future potentials and use cases. Retrieved September 28, 2023, from https://www.isaca.org/resources/news-and-trends/industry-news/2022/digital-realities-future-potentials-and-use-cases.

Ben-George, I. (2021). Business Education graduates' adaptability to evolving office technologies in Rivers State universities. Unpublished PH.D thesis: Department of Business Education, Rivers State University, Port Harcourt.

Borenstein, J. & Howard, A. (2021). Emerging challenges in AI and the need for AI ethics education. AI and Ethics, 1, 61–65.

D'Orio, W. (2018). What's the difference between burnout and demoralization, and what can teachers do about it? Retrieved September 2, 2023, from https://www.edweek.org/education/opinion-whats-the-difference-between-burnout-and-demoralization-and-what-can-teachers-do-about-it/2018/09.

Edgerton, A. & Wasson, E. (2023). Musk alls for AI 'regulatory structure,' warns Congress of risk. Retrieved September 28, 2023, from https://www.bloomberg.com/news/articles/2023-09-13/musk-calls-ai-double-edged-sword-in-tech-ceo-summit-at-us-senate. Google. (2023). Getting started with Bard – Google's conversational AI. Retrieved September 30, 2023, from https://www.google.com/search?q=google+bard&sca_esv=572136157&ei=TxglZYTiKZ6zhbIPqtqUmAk&ved=

Grammarly. (2023). Retrieved October 4, 2023, from https://www.grammarly.com/?transaction_id=102bd220cd1cddcbe561b9697fa451&affiliateNetwork=ho&affiliateID=124135

Hardman, P. (2023). A brief history of AI in education. Retrieved September 14, 2023, from https://drphilippahardman.substack.com/p/a-brief-history-of-ai-in-education#:~:text=In%20fact%2C%20Artificial%20Intelligence%20in,researched%20nuclear%20physics%20and%20DNA.

Limna, p., Jakwatanatham, S., Siripipattanakul, S., Kaewpuang, P., & Sriboonruang, P. (2022). A Review of artificial intelligence (AI) in Education during the Digital Era. Advance Knowledge for Executives, 1(1), (3), 1-9.

Linkedin. (2023). Challenges and opportunities of AI in education. Retrieved September 20, 2023, from https://www.linkedin.com/advice/0/how-can-ai-help-address-global-challenges#:~:text=For%20example%2C%20AI%20can%20help,chatbots%2C%20simulations%2C%20and%20gamification.

Lynch, M. (2018). My vision for the future of Artificial intelligence in education. Retrieved September 2, 2023, from https://www.theedadvocate.org/vision-future-artificial-intelligence-education/.

Obe, D. H., Highton, J., Beard, A., Birkin, G., Corley, A. & Milner, C. (2019). What motivates adults to learn? A rapid evidence review of what drives learning new skills in the workplace. United Kingdom: Nesta.

Oktra. (2020). Office futures: Our top 5 tech trends 2020. Retrieved April 18, 2020, from https://www.oktra.co.uk/insights/office-futures-our-top-5-tech-trends-2020/.

Patil, P. R. & Mudholkar, R. R. (2012). Utilizing cloud computing for modernizing universities IT retrieved May 1, 2021, from https://www.academia.edu/25274804/Utilizing_Cloud_Computing_For_Modernizing_Universities_IT.

Srivastava, S. (2023). 10 Ways AI in education is transforming the industry. Retrieved October 2, 2023, from https://appinventiv.com/blog/10-ways-artificial-intelligence-transforming-the-education-industry/.

UNESCO. (2023a). Artificial intelligence. Retrieved October 2, 2023, from https://www.unesco.org/en/artificial-intelligence.

UNESCO. (2023b). Digital learning and transformation of education: Artificial intelligence in education. Retrieved October 2, 2023, from https://www.unesco.org/en/digital-education/artificial-intelligence?hub=32618.

University of San Diego, (2023). The future of AI in education. Retrieved October 2, 2023, from https://onlinedegrees.sandiego.edu/artificial-intelligence-education/#h-the-future-of-ai-in-education.

Greekline JOURNAL OF MANAGEMENT AND ADMINISTRATIVE STUDIES

ISSN: 279393X

Greekline PUBLICATIONS AND ACADEMIC JOURNALS

VIRTUAL COMMUNICATION PROFICIENCY AND ADMINISTRATIVE COMPETITIVENESS OF COMMERCIAL BANKS IN RIVERS STATE.

Dr. Erien-naikachep Maurice,IKURU
mauriceikuru95@gmail.com;
08064345396
Department of Office and Information Management
Ignatius Ajuru University of Education, Rumuolumeni Port Harcourt, Nigeria.

Dr. Florence Abuoma OROKOR
florenceorokor@gmail.com
07037241521
Department of Office and Information Management
Ignatius Ajuru University of Education, Rumuolumeni Port Harcourt, Nigeria.

ABSTRACT

This study examined the relationship between virtual communication proficiency and administrative competitiveness of commercial banks in Rivers State. The objective of this study was to empirically examine how the dimensions of virtual communications proficiency such as technological proficiency and, adaptability and flexibility can influence for administrative competitiveness. To achieve the objective, the study explanatory survey research design was adopted. The population of the study consisted of one hundred and fifteen (115) top managers from twenty-one (21) Commercial banks operating in Rivers State, Nigeria, as top five managers were chosen from each bank. By census study, the entire population was employed as the sample size of the study. The reliability of the instrument was ascertained using Crombach Alpha with the least coefficient up to 0.743. Out of 115 copies of the questionnaire distributed, 109 copies of the questionnaires were retrieved. The data obtained from the field were analyzed using Spearman's Rank Order Correlation Coefficient and t-test with the aid of SPSS Version 22.0. Four hypotheses were tested using Spearman Rank Order Correlation. The study found that: technological proficiency has a moderate positive relationship with cost efficiency of Commercial Banks in Rivers State; technological proficiency has a weak relationship with process efficiency of Commercial banks in Rivers State; adaptability and flexibility has a very strong positive relationship with cost efficiency of Commercial Banks in Rivers State, and; adaptability and flexibility has a moderate relationship with process efficiency of Commercial Banks in Rivers State. The study concluded that increased use of virtual communication proficiency such as, technological proficiency and, adaptability and flexibility brings about administrative competitiveness of commercial bank. The study recommended amongst other things that business leaders in commercial banks and other financial commercial should attend to the suggested dimensions to stay current on best practices and outer perform other administrators.

Keywords: Virtual Communication Proficiency, Technological Proficiency, Adaptability and Flexibility, Administrative Competitiveness

INTRODUCTION

The vision and mission of every business organization is to outperform her competitors especially in administrative functions. With the introduction of technology and the revolutionism in digital technology; Digital and virtual proficiency skills in communication becomes very necessary to actually stay competitive in today's market (Ruhli, 1997). Administrative competitiveness therefore, is the ability of an organization's administrative functions to perform at a high level, effectively contributing to the overall success and competitiveness of the organization. It involves the development, management, and utilization of administrative resources, processes, and strategies to achieve organizational goals and maintain a competitive advantage (Ruhli, 1997). (Srivastava et al., 2018). In this study, administrative competitiveness is measured with the following; cost efficiency and process efficiency.

Cost efficiency refers to the ability to achieve desired outcomes or results while minimizing or optimizing costs. It involves finding ways to maximize the value or benefits obtained from available resources, minimizing waste, and making efficient use of time, money, and other resources (Liadaki and Gaganis, 2010). Process efficiency refers to the ability to execute tasks, activities, or workflows in the most effective and productive manner, optimizing the use of resources and minimizing waste. It involves streamlining processes, eliminating bottlenecks, reducing errors, and improving overall productivity. Time (Hashemizadeh, 2006). Boutot and Hume (2012), Virtual communication proficiency is the ability of the administrative staff to effectively and efficiently communicate in virtual or remote settings. Virtual communication proficiency is measured in this paper with the following dimensions: technological proficiency, adaptability and flexibility, and security and privacy. Technology Proficiency refers to the capability of using a wide variety of technological tools and processes in performing necessary tasks and achieving meaningful results. This includes the use of computers and gadgets, processing software programs like Microsoft Office, and email management etc. Adaptability refers to the ability of organizations to "reconfigure activities quickly to meet changing demands". Basadur et al. (2014). Mandelbaum (1978) defines flexibility as "the ability to respond effectively to changing circumstances". According to this definition, flexibility is related to two kinds of change. First, there are "changing circumstances"; second, there is a "response" to these changing circumstances which involves a change in some state or activity. Security and privacy involved the protection, access control and permission to various files, applications and software of the organization's information system (Kobryn, 1999). It requires competencies and proficiency to navigate and excel in digital communication platforms. Developing virtual communication proficiency requires practice, adaptability, flexibility, security practices and a willingness to learn and improve.

Statement of the Problem

Commercial banks are constantly facing unstable business environment especially as regards technology and innovation, this has posed strong concern in the quest to achieve administrative competitiveness geared towards maintain cost efficiency and process efficiency. Administrative competitiveness have been said to be the activity of assessing various factors that contribute to an organizations ability to outperform its competitors and succeed in the market. Administrative competitiveness is a complex construct, which can be influence by several factors. Internal factors such as individual capabilities to operate strategically in a market derived from the pressure of competition from the industry (Porter, 1980). So therefore, virtual communication proficiency cannot be tag as a fruitless activities, because it is the ability of effectively and efficiently communicate in line or in remote setting in this increase prevalence of remote work. Previous studies such as the work of Miles and Snow (1986) Organizations: New concepts for new forms, and the study by Jarvenpaa and Ives (1994) The global network organization of the future. This study does not pay specific attention to how dimensions of virtual communication proficiency such as technological proficiency and, adaptability and flexibility, interact with the measures of administrative competitiveness, this gave credence to this study.

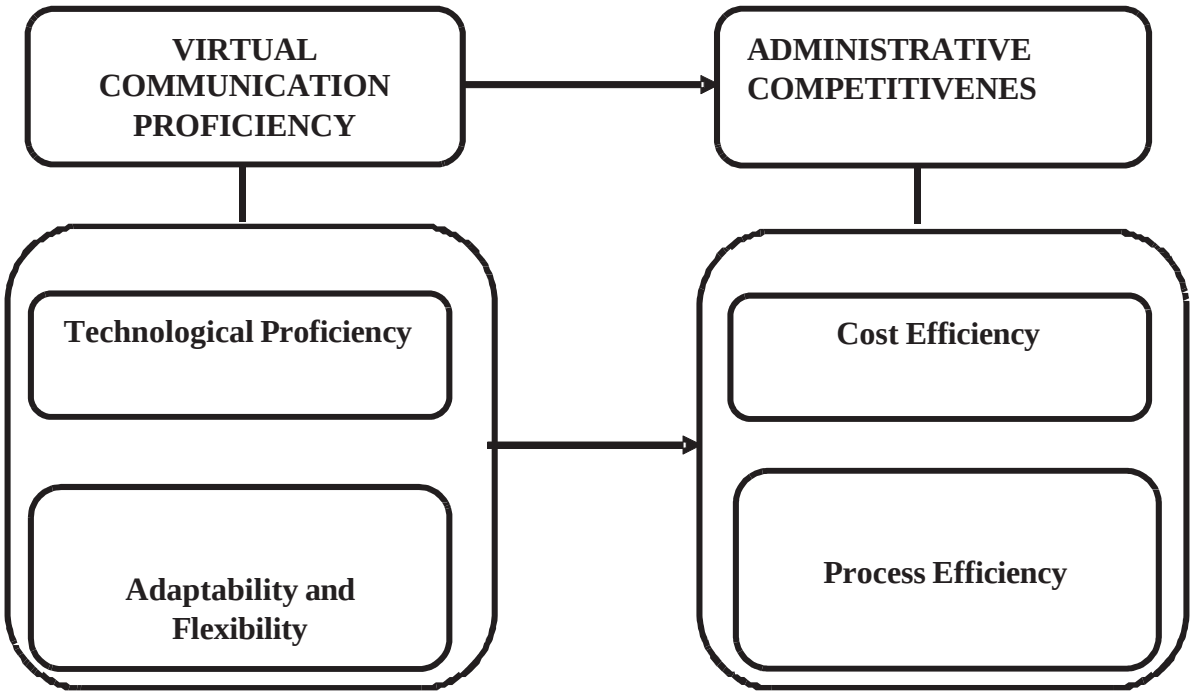


Fig. 1.1: Conceptual framework showing relationship between virtual communication proficiency and administrative competitiveness of commercial banks In Rivers State.

Source: *The Researcher's Conceptualization (2023).*

Objectives of the Study

The purpose of this study was to examine how virtual communication proficiency relates for administrative competitiveness. The objectives of this study include the following:

1. To examine the relationship between technological proficiency and cost efficiency of Commercial banks in Rivers state, Nigeria.
2. To examine the relationship between technological proficiency and process efficiency of Commercial Banks in Rivers State, Nigeria.
3. To examine the relationship between adaptability and flexibility, and cost efficiency of Commercial banks in Rivers State, Nigeria.
4. To examine the relationship between adaptability and flexibility, and process efficiency of Commercial banks in Rivers State, Nigeria.

Concept of Virtual Communication Proficiency

Communication is at the heart of every organization as no organization can function without modern style of communication, digitalization and the fourth industrial revolution have inevitably led to fundamental changes in all the spheres of social, cultural and economic life, such as the appearance of virtual communities, “smart” enterprises and universities, the introduction of Industrial Internet and the Internet of things. Modern society is being reconfigured under the influence of information technologies and mobile telecommunications and represents the system in which real interpersonal communication is being replaced by virtual.

The rapid growth of the Internet and telecommuting coupled with increased globalization of organizations have contributed to the growing number of people who work in virtual teams within and between organizations. Virtual teams are groups of people engaged in a common task or goal communicating through electronic means, which may be electronic mail (email), Web-based communications, video and/or audio, but in general having considerable interaction online. Miles & Snow (1986) defined a virtual team as an evolutionary form of a network organization; virtual team processes are enabled by communication and information technology (Davidow & Malone, 1992; Jarvenpaa & Ives, 1994). Computer-mediated communication systems (CMCS) are sociotechnical systems that support and enhance the communication and co-ordination-related activities of team members engaged in computer-supported cooperative work. These computer-based communication technologies are utilized to overcome space and time constraints that burden face-to-face meetings, to increase the range and depth of information access and to improve group task performance effectiveness, especially by overcoming `process losses' (McGrath & Hollingshead, 1993, 1994). Further, CMCS increase the range, capacity and speed of managerial communications (Culnan & Markus, 1987). They can also `reduce or eliminate the expense and inconvenience associated with distributed work' (Galegher & Kraut, 1994).

One objective of using these technologies is to create similar levels of communications' speed and effectiveness as those achieved at traditional meetings. Virtual teams allow managers to assemble groups of employees to meet transient, unanticipated needs (Hammer & Champy, 1993). Virtual teams that can fulfil constantly changing task requirements can offer organizations the flexibility to remain competitive (Mowshowitz, 1997). Virtual teamwork may be synchronous (`same time/different place') or asynchronous (`different time/different place'). Synchronous meetings are spontaneous, in which ideas are exchanged with little structure. Participants communicate with each other in such a way that it is sometimes difficult to attribute an idea to one participant or establish the reason behind a particular decision. Virtual communication proficiency has a significant influence on administrative competitiveness. By leveraging virtual communication tools effectively, administrators can enhance collaboration, problem-solving, leadership, stakeholder engagement, and adaptability to remote work processes, ultimately driving administrative excellence and competitiveness in today's digital landscape.

Technological Proficiency:

It is obvious that technology has a vital impact, not just in terms of competitive advantages of the companies and sectors, but also for the productivity of the companies and respective countries. Kiper (2004) states that it plays an important role in the level of the development of countries from the perspective of the impact it creates. The technological infrastructure is the main element of competency. Technology Proficiency refers to the capability of using a wide variety of technological tools and processes in performing necessary tasks and achieving meaningful results. This includes the use of computers and gadgets, processing software programs like Microsoft Office, and email management.

Moreover, it also involves computer software and hardware troubleshooting. (Grunwald and Achternbosch, 2013). Nowadays, with the competition between companies reaching its highest level, it is obvious that the technological expertise increases competitive power of business enterprises. Work in this area no longer focuses on just technology but is also associated with the innovation, machines suits, etc. (Schot and Rip, 1997). Developments in technology empowers the innovative products and processes to spring up. The continuation of a company in the market is considered directly proportional to its ability to adapt to the technological advancements. The demand for technology assessment is therefore rapidly increasing (Bechmann et al., 2007). By addressing the enterprise compatibility for utilising the technology, the companies may find an opportunity to implement an action plan to prevent or reduce technological gaps. Similarly, from past to present, the technology, along with social, economic and cultural factors, has become one of the most influential components in changing of societies (Ladikas and Decker, 2004). Technological proficiency refers to the level of skill, knowledge, and capability an individual possesses in using various technologies effectively. It encompasses the ability to navigate and utilize digital tools, software, and devices to accomplish tasks efficiently and achieve desired outcomes. Technological proficiency includes both technical skills and a deep understanding of the underlying principles and concepts related to technology. Technological proficiency is essential in today's digital world, as technology permeates various aspects of work and life.

Adaptability and Flexibility:

The concept of adaptability enjoys significant attention in research literature. (Chaharbaghi et al., 2005; Kotter & Heskitt, 1992; and Denison, 1984 & 1990). Simsek (2009:602) refers to the ability of organizations to “reconfigure activities quickly to meet changing demands”. Basadur et al. (2014) describe adaptability as being good at changing routine in the organization, which implies that change is disruptive. They suggest that adaptability could be conceptualized as a four-stage process consisting of generating, conceptualizing and solving problems followed by implementing solutions. Mandelbaum (1978) defines flexibility as “the ability to respond effectively to changing circumstances”. According to this definition, flexibility is related to two kinds of change. First, there are “changing circumstances”; second, there is a “response” to these changing circumstances which involves a change in some state or activity. Furthermore, the requirement that this latter change constitutes an “effective” response implies that it is desirable in relation to the changing circumstances. Flexibility is the propensity of an actor or a system to exhibit variation in activities or states which is correlated with some other variation and desirable in view of this variation. For example, working time flexibility may mean that the length of the working time per day, per week or per year changes in response to changes in production volume, or that although the length of the working time is the same for each period of time, the location of the working time within each period of time varies between periods according to changing circumstances (Mandelbaum, 1978).

Concept of Administrative Competitiveness

Goal of every organization is to outperform her competitors especially in administrative functions, administrative competitiveness refers to the ability of an organization's administrative functions to perform at a high level, effectively contributing to the overall success and competitiveness of the organization. It involves the development, management, and utilization of administrative resources, processes, and strategies to achieve organizational goals and maintain a competitive advantage. More recent approaches of strategic management point out the importance of seeking and establishing a unique sustainable competitive advantage or even sequential transient competitive advantages (Ruhli, 1997). Administrative competitiveness is the capability of an organization's administrative functions to optimize resources, streamline processes, and effectively support the organization's operations, strategies, and goals in a competitive marketplace, to achieve competitiveness in our administrative functions , firms need to constantly focus on the identification of differential product strategies, building or reshaping core competencies, acquiring unique technologies, and accumulation of intellectual property, all of which can all be harnessed to make the administrators successful in a highly competitive marketplace. Identifying what constitutes a core competence has been a subject of debate in the literature for over 20 years (Prahalad & Hamel, 1990; Aaker, 1989). This problem has become even more complex with globalization and the growth of the internet, which has given open access to more competitive, environmental, and technological information. One key model that was developed in the 1980's modeled core competencies as unique “resources and capabilities”. This was known as the resource-based view of the firm (Grant, 1991). Administrative competitiveness encompasses the effective management and utilization of administrative resources, processes, and strategies to support organizational success and maintain a competitive edge. It involves aligning administrative functions with organizational goals, optimizing efficiency and productivity, and continuously improving administrative practices to drive excellence and enhance organizational competitiveness.

Cost Efficiency:

The ultimate financial goal for the company is creating value. It can be achieved by having good management of resources and internal process. The process of goods or services production requires the transformation from resources to be finished goods or services. The more efficient the process the higher value of added goods or services produced (Heizer and Render, 2009). Increasing productivity means improving the efficiency of the company, while the concept of efficiency is a comparison between inputs and outputs. Input is the resources used to produce the output, while the output is the results after all. Efficiency is one of the parameters of banks' performance, and that performance measures it underlying the organization. Farrel (1957) gives a contribution to measure efficiency and productivity in micro level. Liadaki and Gaganis (2010) stated that profit efficiency can improve the performance of the stock. Aftab et al (2011) did the research of the Bank listed on the Karachi Stock Exchange, and they found that the efficiency of the bank's influence on shares performance. Cost efficiency refers to the ability to achieve desired outcomes or results while minimizing or optimizing costs.

It involves finding ways to maximize the value or benefits obtained from available resources, minimizing waste, and making efficient use of time, money, and other resources (Liadaki and Gaganis, 2010). Cost efficiency is an important consideration for individuals, businesses, and organizations looking to optimize their operations and achieve financial success.

Process Efficiency:

Process efficiency refers to the ability to execute tasks, activities, or workflows in the most effective and productive manner, optimizing the use of resources and minimizing waste. It involves streamlining processes, eliminating bottlenecks, reducing errors, and improving overall productivity. Process efficiency is crucial for individuals, businesses, and organizations seeking to improve performance, increase productivity, and achieve desired outcomes. By focusing on process efficiency, organizations can optimize their operations, reduce costs, improve customer satisfaction, and achieve better overall outcomes (Liadaki and Gaganis, 2010). It involves analyzing, streamlining, automating, and continuously improving processes to maximize productivity, minimize waste, and enhance overall organizational performance.

Socio-Technical Theory

The socio-technical theory is attributed to Eric Trist, Ken Bamforth and Fred Emery, (1939-1945), "socio-technical" refers to the interrelatedness of social and technical aspects of an organization. The socio-technical theory holds that business organizations are made up of human beings working together in social groups using equipment, tools, methodologies and knowledge to achieve desirable changes in the system and to bring about the achievement of corporate goals as well as outperforming competitors (Walker et al., 2016). The socio-technical theory further describes how societal changes necessitates changes in the techniques, procedures, infrastructure and technologies used in organizations (Norris & Moon, 2015).

The socio-technical theory is founded on two cardinal assumptions:

The interactions of social and technical factors create the conditions for successful (or unsuccessful) system performance" (Walker, et al., 2016). These interactions are comprised partly of linear cause and effect' relationships, the relationships that are normally 'designed', and partly from 'non-linear', complex, even unpredictable relationships, which are those that are often unexpected.

The second major principle of socio-technical theory is that "optimization of either socio, or far more commonly the technical, tends to increase not only the quantity of unpredictable, 'un-designed', non-linear relationships, but those relationships that are actually injurious to the system's performance" (Walker, et al., 2016). Thus, second principle of socio-technical theory hinges on joint optimization.

The justification of the socio-technical theory as the theoretical foundation of this study is based on the fact that the theory talks about how the interaction between people and technology could enhance administrative competitiveness. It is therefore reasonable to adopt this theory since the work is aimed at qualitative survey evidence on how human and technology interact with administrative competitiveness.

Methodology

The study adopted explanatory survey research design. The population of the study consisted of one hundred and fifteen (115) top managers from twenty-one (21) Commercial Banks operating in Rivers State, Nigeria. Top five (5) top managers such as General Manager, Operations Manager, Human Resource Manager, Customer Relations Manager, and Information Technology Manager were chosen from each bank. By census study, the entire population was employed as the sample size of the study.

To obtain primary data, a structured questionnaire entitled "Virtual Communication Proficiency and Administrative Competitiveness (VCPAC)" was designed in five-point Likert scale with the following response options: Very High Extent (VHE) 4; High Extent (HE) 3; Moderate Extent (ME) 2; Low Extent (LE) 1. The instrument was validated by two experts in Management. The reliability of the instrument was ascertained using Crombach Alpha with the least coefficient up to 0.763. Out of 115 copies of the questionnaire distributed, 95 copies of the questionnaires were retrieved, representing 83%. The data obtained from the field were analyzed using Spearman's Rank Order Correlation Coefficient with the aid of SPSS 22.0 (Statistical Package for Social Sciences).

4.1 Presentation of Data

Table 4.1: Questionnaire Administration and Survey Result.

S/N	Banks	Population	Sample size	Questionnaire returned	Questionnaire not returned
1	Access Banks	6	6	5	1
2	Citibanks	6	6	6	
3	Eco Banks	6	6	5	1
4	FCMB	5	5	5	
5	Fidelity Banks	5	5	5	-
6	First Banks	6	6		-
7	First City Monument Banks	5	5	5	
8	GT Banks	7	7	5	2
9	Heritage Banks	5	5	5	
10	Keystone Banks	6	6	6	-
11	Polaris Banks	6	6	5	1
12	Premium Trust Banks	5	5	5	
13	Stanbic Banks	5	5	5	-
14	Standard Chartered Banks	5	5	5	
15	Sterling Banks	6	6	5	-
16	Titan Trust Banks	6	6	6	
17	United Banks for Africa	7	7	6	1
18	Unity Banks	5	5	5	

19	Union Banks	4	4	4	
20	WemaBanks	5	5	5	
21	Zenith Banks	5	5	4	1
Total		**115**	**115**	**109**	**6**

Particulars of questionnaire	**Number of Cases**	**Percentage**
Copies of Questionnaire Administered	115	100
Copies of Questionnaire Retrieved/Returned	109	95.00
Copies of Questionnaire not Retrieved/Returned	6	5.00

Source: Field Work (2020)

The above table 4.1 shows that a total of one hundred and fifty (115) copies of questionnaire were distributed to the respondents, out of which a total of one twenty-three (109) copies were retrieved, representing 95%. Twenty-seven (6) copies representing 5% of the copies questionnaire were not retrieved. All the copies of questionnaire returned were suitable and were used for the data analysis.
Decision Rule: Using a level of significance of 0.05 (confidence interval of 95%), when a calculated significant value is less than 0.05 the null hypothesis is rejected, if otherwise, the null hypothesis is accepted.

Results/Findings

Ho_1: Technological proficiency does not have any significant relationship with cost efficiency of Commercial Banks in Rivers State.

Ho_2: Technological proficiency does not have any significant relationship with process efficiency of Commercial Banks in Rivers State.

		Predictor	**Criterion**	
		Technological Proficiency	Cost Efficiency	Process Efficiency
Technological Proficiency	Rho	1.000	.315**	.222**
	Sig.	.	.000	.000
	N	95	95	95

****. Correlation is significant at the 0.01 level (2-tailed).**

Source: SPSS Output from Field Data (2023)

Column two of table 1 above shows a correlation value of 0.315 at a significance level of 0.000 which is less than the chosen alpha level of 0.05 for the hypothesis relating to technological proficiency and cost efficiency. Since the significance value is less than the alpha level of 0.05, the null hypothesis (Ho_1) which states that technological proficiency does not have any significant relationship with cost efficiency of Commercial Banks in Rivers State was rejected. This indicates that there is a significant correlation between technological proficiency method and cost efficiency of commercial Banks. With a correlation value of 0.315, the result reveals that technological proficiency has a moderate positive relationship with cost efficiency of Commercial Banks in Rivers State. This equally implies that increase in technological proficiency brings about significant improvement to cost efficiency of administrators and executives in commercial banks in Rivers State, Nigeria.

Column three of table 1 above shows a correlation value of 0.222 at a significance level of 0.000 which is less than the chosen alpha level of 0.05 for the hypothesis relating to technological proficiency and process efficiency. Since the significance value is less than the alpha level of 0.05, the null hypothesis (Ho_2) which states that technological proficiency does not have any significant relationship with process efficiency of Commercial Banks in Rivers State was rejected. This indicates that there is a significant correlation between technological proficiency and process efficiency. With a correlation value of 0.222, the result reveals that technological proficiency has a weak relationship with process efficiency of Commercial Banks in Rivers State. This equally implies that increase in technological proficiency for enhanced knowledge and certification of staff and executives brings about little improvement in the process efficiency of Commercial Banks in Rivers State, Nigeria.

Ho_3: Adaptability and flexibility does not have any significant relationship with cost efficiency of Commercial Banks in Rivers State.

Ho_4: Adaptability and flexibility does not have any significant relationship with process efficiency of Commercial Banks in Rivers State.

Table 2: Correlation between Adaptability and Flexibility and Administrative Competitiveness

		Predictor	**Dependent**	
		Adaptability and flexibility	Cost Efficiency	Process Efficiency
Adaptability and Flexibility	Rho	1.000	.935**	.404**
	Sig.	.	.016	.000
	N	95	95	95

****. Correlation is significant at the 0.01 level (2 -tailed).**

Source: SPSS Output from Field Data (2023)

Column two of table 2 above shows a correlation value of 0.315 at a significance level of 0.00 which is less than the chosen alpha level of 0.05 for the hypothesis relating to adaptability and flexibility and cost efficiency. Since the significance value is less than the alpha level of 0.05, the null hypothesis (Ho_3) which states that adaptability and flexibility does not have any significant relationship with cost efficiency of Commercial Banks in Rivers State was rejected. This indicates that there is a significant correlation between adaptability and flexibility and cost efficiency. With a correlation value of 0.935, the result reveals that adaptability and flexibility method has a very strong positive relationship with cost efficiency of Commercial Banks in Rivers State. This equally implies that increase in adaptability and flexibility method brings about significant improvement in the cost efficiency of administrators and executives in commercial banks in Rivers State, Nigeria.

Column three of table 2 above shows a correlation value of 0.222 at a significance level of 0.00 which is less than the chosen alpha level of 0.05 for the hypothesis relating to adaptability and flexibility, and process efficiency. Since the significance value is less than the alpha level of 0.05, the null hypothesis (Ho_4) which states that adaptability and flexibility does not have any significant relationship with process efficiency of Commercial Banks in Rivers State was rejected. This indicates that there is a significant correlation between adaptability and flexibility method and process efficiency. With a correlation value of 0.404, the result reveals that adaptability and flexibility method has a moderate relationship with process efficiency of Commercial Banks in Rivers State. This equally implies that increase in adaptability and flexibility for enhanced knowledge and certification of staff and executives brings about a moderately significant improvement in the process efficiency of Commercial Banks in Rivers State, Nigeria.

Discussion of Findings

The tests of hypotheses one and two showed that the use of technological proficiency for developing the capacity of administrator and managers enhances competiveness of banks in Rivers State, Nigeria. Technological proficiency can act as a catalyst for administrative competitiveness by enabling organizations to leverage technology effectively, streamline processes, and gain a competitive edge: Technological proficiency allows administrators to leverage digital tools and automation to streamline administrative tasks, reduce manual effort, and increase efficiency. This finding is in agreement with (Grunwald and Achternbosch, 2013).by effectively utilizing technology, organizations can optimize resource allocation, minimize errors, and improve overall productivity. Technological proficiency enables administrators to effectively collect, manage, and analyze data. This allows for data-driven decision-making, insights into administrative competitiveness of commercial banks in Rivers state, and the ability to identify trends and opportunities. Administrators can use data to improve processes, identify areas for improvement, and make informed strategic decisions especially in the Commercial banks.

Proficiency in technology facilitates seamless communication and collaboration among administrators and teams. Utilizing communication tools, project management platforms, and collaborative software enables efficient information sharing, teamwork, and coordination (Bechmann et al., 2007). Effective communication and collaboration contribute to streamlined workflows and improved administrative outcomes. By leveraging technology to understand customer needs, administrators can deliver better service, build stronger relationships, and differentiate themselves from competitors. Proficiency in technology enables administrators to identify cost-saving opportunities and optimize administrative expenses.

The tests of hypotheses three and four revealed that the consciousness in adaptability and flexibility for developing the administrative competitiveness of commercial banks in Rivers State, Nigeria. Adaptability and flexibility are crucial catalysts for administrative competitiveness as they enable organizations to respond to changing environments, embrace innovation, and stay ahead of the competition in the commercial bank. Administrators who are adaptable and flexible can quickly assess new situations, analyze information, and make informed decisions. This agility allows them to respond promptly to market changes, customer demands, and emerging trends, gaining a competitive advantage. Adaptable administrators are open to new ideas and technologies, willing to experiment, and embrace innovation. They encourage a culture of innovation within the organization, fostering creativity and continuous improvement (Grunwald and Achternbosch, 2013). This mindset helps the organization stay ahead of competitors and adapt to evolving industry landscapes. Flexibility in resource allocation enables administrators to optimize the allocation of personnel, budget, and other resources. Being able to reallocate resources based on changing priorities and needs ensures that the organization remains competitive and can respond effectively to market demands. Technological advancements are constantly reshaping administrative practices. Administrators who are adaptable and flexible can quickly adopt and integrate new technologies into their workflows. This allows them to leverage automation, data analytics, and other technological tools to streamline processes, improve efficiency, and gain a competitive edge.

Administrators who possess adaptability and flexibility are skilled in managing organizational change. They can navigate through transitions, communicate effectively, and engage employees in the change process (Bechmann et al., 2007). This helps minimize resistance, maintain productivity, and ensure successful implementation of new strategies or initiatives. Adaptable administrators foster a learning culture within the organization. They encourage employees to continuously develop their skills, acquire new knowledge, and adapt to evolving industry trends. This commitment to learning and development enhances the organization's capabilities and ensures its competitiveness in the long run.

The study deduced that organizations with high technological proficiency tend to exhibit better cost efficiency and process efficiency, contributing to their administrative competitiveness by effectively leveraging technology, organizations can optimize resource allocation, automate processes, and make data-driven decisions to achieve cost-saving benefits and streamline operations.

Technological proficiency significantly influences administrative competitiveness by improving cost efficiency through optimized resource utilization and facilitating process efficiency through automation, streamlining, and data-driven decision-making. Organizations that prioritize and invest in technological proficiency are more likely to achieve higher levels of administrative competitiveness.

It was also found that organizations with higher levels of adaptability and flexibility tend to exhibit better cost efficiency and process efficiency, enhancing their administrative competitiveness by being adaptable, organizations can proactively identify and implement cost-saving measures and optimize processes to achieve efficiency gains. Meanwhile, flexibility enables commercial banks to adapt to changing circumstances, ensuring that administrative processes align with business requirements and maximize efficiency. It is important to note that technological proficiency and, adaptability and flexibility should be balanced with stability and control to avoid excessive costs or process disruptions. Commercial must assess their specific industry, market conditions, and strategic goals to determine the optimal level of technological proficiency and, adaptability and flexibility required for administrative competitiveness.

Conclusion

Virtual communication proficiency serves as a catalyst for administrative competitiveness, with technological proficiency, adaptability and flexibility, and security and privacy as essential dimensions, technological Proficiency is crucial for administrative competitiveness in a virtual communication environment. Understanding and effectively utilizing digital tools and platforms enable administrators to be cost efficient, streamline processes, and time efficient also adaptability and flexibility to the changing technological landscape, this entails that an administrator should poses the skill of constantly adapting to the changes in the tools and scenario in administrative duties which brings about efficiency, more so, security is a vital dimension of virtual communication proficiency, by prioritizing data security and implementing robust measures, administrators can safeguard sensitive information, protect against cyber threats, and maintain the trust of stakeholders. This contributes to the competitiveness of the administrator. Virtual communication proficiency, supported by technological proficiency, adaptability and flexibility, security, and privacy, is a catalyst for administrative competitiveness by leveraging technology, ensuring data security and privacy, and excelling in virtual communication, administrators can drive efficiency cost, streamline processes and timing which ultimately enhancing the organization administrative competitiveness.

RECOMMENDATIONS

Based on the finding from the survey of literature and the conclusion, the paper recommends the following:

1. Organization should Invest in Technological Infrastructure, ensure that the organization has robust technological infrastructure, including reliable hardware, software, and network systems, this enables administrators to effectively utilize digital tools and platforms for communication, collaboration, and data management also, offering regular training and professional development programs to enhance the technological proficiency of administrators. This ensures they stay updated on emerging technologies and acquire the necessary skills to leverage them effectively.
2. Management of organizations should foster the culture of adaptability and flexibility which promotes openness to change, encouraging experimentation, and providing resources for administrators to develop new skills and adapt to evolving technologies and work practices.

3. Prioritize Data Security and Privacy protocols to protect sensitive information, this includes data encryption, secure access controls, regular system audits, and compliance with relevant data protection regulations. Communicate the organization's commitment to data security and privacy to build trust with stakeholders also, regularly assess potential risks and vulnerabilities related to technology, data security, and privacy, this proactive approach allows administrators to identify and address potential threats promptly, minimizing the impact of security incidents and ensuring administrative continuity.

REFERENCES

AAKER, D. (1989). Managing assets and skills: The key to sustainable competitive advantage. *California Management Review. 31, 91-106.*

Achunine, R. (2004). Management of administration of secondary school education: Totan Publishers

Aftab, M., Sajjad A., Wasim U. & Rauf A. S. (2011). The impact of bank efficiency on share performance: evidence from Pakistan. *African Journal of Business Management,* 5 (10), 3975-3980

Alan, M. (2009). Efficient use of time management. business development, 3, 12-13.

Baecker, R.M. (1993). Readings in groupware and computer-supported cooperative work. Morgan Kaufmann Publishers, San Mateo, CA.

Basadur, M., Gelade, G. & Basadur, T. (2014). Creative problem-solving process styles, cognitive work demands, and organizational adaptability. *The Journal of Applied Behavioral Science*, 50(1), 80–115.

Bechmann, G., Decker, M., Fiedeler, U. & Krings, B.J. (2007). 'Technology assessment in a complex world'*, International Journal of Foresight and Innovation Policy*. 3. 1,.6–27.

Boutot, E. & Hume, K. (2012). Beyond time out and table time: Today's applied behavior analysis for students with autism. *Education and Training in Autism and Developmental Disabilities*, 47(1), 23–38.

Burton J. (1979). Deviance, terrorism and war: the process of solving unsolved social and political problems. Macmillian.

Burton, J. (1990). Conflict: Human needs theory. Macmillian Carlsson, Bo, Flexibility and theory of the firm, "*International Journal of Industrial Organization"*, 7, no. 2, 1989.

Chaharbaghi, K., Adcroft, A. & Willis, R. (2005). Organisations, Transformability and the Dynamics of Strategy. *Management Decision*, 43(1), 6-12.

Cortada, J. W. & Hargraves, T. S.(1999). Into the networked age, New York: Oxford University Press, 1999

Culnan, M.J. & Marcus, M.L. (1987). Information technologies. In: Handbook of organizational communication: An interdisciplinary perspective, Jablin, F.M., Putnam, L.L., Roberts, K.H. & Porter, L.W. (eds). 420±442. Sage Publishing, Newbury Park, CA.

Davidow, W.H. & Malone, W.S. (1992). The virtual corporation, Edward Aurlington Books/Harper Business. Harper collins Publishers.

Denison, D. R. (1984). Bringing Corporate Culture to the Bottom Line. Organisational Dynamics, 13(2), 4-22.

Eshaghieh, A., & Eslami, S. (2015). The Effect of Time Management on Human Resources' Productivity Social Security Organization of Yazd. *Journal of Applied Environmental and Biological Sciences*, 5(11), 69-79.

Farrel, M.J. 1957. The Measurement of Productive Efficiency. *Journal of the Royal Statistical Society*., 253-290.

Galegher, J. & Kraut, R. (1994) Computer-mediated communication for intellectual teamwork: an experiment in group writing. Information Systems Research, 5 (2), 110±138.

GRANT, R. (1991). The Resource-Based Theory of Competitive Advantage: Implications for Strategy Formulation. California Management Review. 33, 114-135.

Grunwald, A. and Achternbosch, M. (2013) 'Technology assessment and approaches to early engagement', in Early Engagement and New Technologies: Opening up the Laboratory, pp.15–34, Springer, Netherlands

Hammer, M. & Champy, J. (1993) Reengineering the Corporation. HarperCollins.

Heizer, J dan Barry Render. 2009. Operations Management. Pearson Education

Hemmatian, F. (2009). Examine the relationship between the amount of time management skills at different levels of management schools in the academic year 2007-2009. Iran: Isfahan University.

Hiltz, S.R., Johnson, K. & Turoff, M. (1986) Experiments in group decision making: communication process and outcome in face-to-face versus computerized conferences. Human Communication Research, 13, 225± 252.

Jarvenpaa, S.L. & Ives, B. (1994) The global network organization of the future. *Journal of Management Information Systems*, 10 (4), 25±57.

Kinney, S.T. & Panko, R.R. (1996) Real project teams: profiles and surveys of member perceptions. In Proceedings of the Hawaii International Conference on System Sciences, vol. III, Kihei, Hawaii, January 1996.. 128± 138. IEEE Computer Society Press, Los Alamitos, CA.

Kiper, M. (2004) 'Mechanism for technology transfer and respective university-industry relationship', Teknoloji, Turkish Engineering and Architecture Association, Ankara, pp.59–122.

Klein, B. H., Prices, Wages and Business Cycles. A Dynamic Theory. Pergamon, New York 1984.

Kobryn, C., "UML 2001: A Standardization Odyssey", Communication of the ACM (42:10), October, 1999. 29-37.

Kotter, J. P., & Heskett, J. L. (1992). Corporate Culture and Performance. Free Press.

Ladikas, M. and Decker, M. (2004) 'Assessing the impact of future-oriented technology assessment', EU-US Seminar: New Technology Foresight, Forecasting & Assessment Methods, Seville, Spain, 13–14 May

Liadaki A., Gaganis C., (2010), Efficiency and stock performance of EU banks: Is there a relationship? Omega - *The International Journal of Management Science*, 38, 254-259

Linkow, P. What gifted strategic thinkers do. Training & Development, July 1999, 34-37.

Mandelbaum, M (1978). Flexibility in Decision Making. An Exploration and Unification. Toronto: Department of Industrial Engineering, University of Toronto (diss.).

McGrath, J.E. & Hollingshead, A.B. (1993) Putting the `group' back in group support systems: Some theoretical issues about dynamic processes in groups with technological enhancements. In: Group Support Systems: New Perspectives. Jessup, L.M. & Valacich, J.S. (eds), Macmillan Publishing Company.

McGrath, J.E. & Hollingshead, A.B. (1994) Groups Interacting with Technology: Ideas, Evidence, Issues and an Agenda. Sage Publications.

Miles, R.E. & Snow, C.C. (1986) Organizations: New concepts for new forms. California Management Review, 18 (3), 62-73.

PRAHALAD, C. K. & Hamel, G. et al. (1990). The Core Competence of the Corporation. Harvard Business Review. 3, 71-79.

Ruhli, E., «The concept of hyper-competition – new approach to strategic management in large multinational firms». Strategic Change, 6, 377 -390, 1997.

Schot, J. and Rip, A. (1997) 'The past and future of constructive technology assessment', Technological Forecasting and Social Change, 54, No. 2, pp.251–268, ISSN 0040-1625.

Simsek, Z. (2009). Organizational ambidexterity: towards a multilevel understanding. *Journal of Management Studies,* 46(4), 597-624

Susan, R. (2012, 2 18). https://www.healio.com/endocrinology/practice-management.

Warkentin, M.E., Sayeed, L. & Hightower, R. (1997) Virtual teams versus face-to-face teams: an exploratory study of a web-based conference system. Decision Sciences, 28, 975-996.

LEADERSHIP STYLES AND EMOTIONAL INTELLIGENCE OF BUSINESS EDUCATORS IN NIGERIA

DR. SEYI DAVID
david.seyi@lcu.edu.ng
Department of Arts and Social Science Education
(Business Education Unit)
Faculty of Education
Lead City University, Ibadan, Nigeria

KAZEEM M. ADEBAYO
Department of Business Education,
Federal College of Education (Special), Oyo

ABSTRACT

Leadership styles and emotional intelligence are paramount in every organization because its impact on personal goal achievement of Business Educators cannot be underestimated. It is believed that, the effective functioning of social systems is largely dependent on the quality of leadership style. The hub is this paper was to examine how leadership style and emotional intelligence of Business Educators. The study employed the qualitative method of research. In going about this, the study x-ray. Concept of leadership style, forms of leadership styles, concept of emotional intelligence, elements of emotional intelligence, who is a business educator, qualities of a good business educator and leadership styles and emotional intelligence of business educators in Nigeria. Based on evidence from literature, the study concludes that an appropriate mix of leadership style and emotional intelligence of business educators will go a long to determine level of goal attainment. Thus, the study recommends that leaders in organizations should possess leadership qualities and adopt effective leadership styles that facilitates the realization of both cooperate and individual goals.

Keywords: *Leadership Styles, Emotional Intelligence, Business Educator, Nigeria*

INTRODUCTION

The term Emotional Intelligence (E.I.) refers to the ability to identify, use, understand and manage emotions and emotional information (Gayathri & Vimal, 2013). It is a form of social intelligence that involves the ability to monitor one's own and others' feelings and emotions, to discriminate among them, and to use this information to guide one's own thinking and action (Wannamaker, 2005). According to Mayer (2005), it is the ability to reason about ones' emotions and provide emotional information to enhance thought process. Emotional intelligence is a person's ability to process information about emotions accurately and effectively and consequently to regulate emotions in an optimal manner (Goleman, 2005). However, emotional intelligence includes self-control, zest (passion) and persistence, ability to motivate oneself, ability to understand and regulate one's own emotions, and an ability to read and deal effectively with other people's feelings. It is a form of social intelligence that involves the ability to monitor one's own and others' feelings and emotions, to discriminate among them, and to use this information to guide one's own thinking and action. (Wannamaker, 2005). Emotional intelligence is the capability to manage an individual's emotional responses in the presence of other individuals and in diverse circumstances (Dlofan, 2016). It is linked to the capability of comprehending oneself and others, communicating with others and adapting oneself with his surrounding environment (Kamalian & Fazel, 2011). Hence, it denotes how competent an individual is able to comprehend itself and others in order to show sturdy adaptability to the environment.

Emotional intelligence comprised of two competencies: personal and social; these components have been well described by the most popular and widely accepted emotional intelligence model proposed by Goleman (1995). There is no how you will talk about emotional intelligence in work place and it influences leadership styles. Leaders may need to develop a vision and enforce guiding organizational values and rules that many employees may not like or understand (Kouzes & Posner, 2006). Although many leaders have applied a variety of leadership styles within their role as leaders, those who are successful and productive have a high degree of EI competencies (Goleman, 2013; Dapke, 2016). Leaders, managers, and supervisors can use their EI skills to solve complex issues (Fiori & Antonakis, 2012). Further, leaders can use EI to manage employee interactions in diverse environments (Clark & Polesello, 2017). Emotional intelligence is a topic that is growing increasingly popular in both private and public industries. Business Education as an aspect of vocational education equips individuals with knowledge and necessary skills that will make the recipients useful members of the society.

Leadership Styles Defined

Leadership style is the method and approach to providing direction, implementing plans, and motivating people. Abba et al. (2004) view leadership styles as the process and method of getting people to do what the leader wants; that is, the right of a manager to assign duties to subordinates. In order to get the best results from subordinates, managers must be able to raise subordinates' morale, by implication, a spirit of involvement and co-operation, and a willingness to work. Abba, et al. (2004) and Weihrich et al. (2011) identified three major leadership styles namely, autocratic, laissez-faire and democratic leadership. These are leadership styles, which concerns the McGregor's Theory "X and Y" assumptions. In modern leadership theories, five leadership styles have been presented, including; charismatic leadership, transactional leadership, transformational leadership, visionary leadership, and culture-based leadership (DeRue & Myers, 2013; Ojokuku et al., 2012). However, below is a brief discussion of some common leadership styles mentioned above and their potential impact on emotional intelligence of business educators.

Forms of Leadership Styles

Charismatic Leadership: This is the most successful trait-driven leadership style. Charismatic leaders have a vision, as well as a personality that motivates followers to execute that vision. As a result, this leadership type has traditionally been one of the most valued. Charismatic leadership provides fertile ground for creativity and innovation, and is often highly motivational. With charismatic leaders at the helm, the organization's members simply want to follow. It sounds like a best case scenario. There is however, one significant problem that potentially undercuts the value of charismatic leaders: they can leave. Once gone, an organization can appear rudderless and without direction. The struggling can last for years, because charismatic leaders rarely develop replacements. Their leadership is based upon strength of personality. As a result, charismatic leadership usually eliminates other competing, strong personalities and difficult to learn (Germain, 2012; Zaccaro, 2007). The result of weeding out competition is a legion of happy followers, but few future leaders (Michael, 2010).

Democratic leadership: This style of leadership is exemplified by the leader encouraging subordinates' participation in the decision-making processes of the organization. In other words**,** democratic leaders get members involved in decision-making, by guiding them to determine how the group functions. This style demonstrates support for every person in the group; where leadership tasks are shared; and where decision-making and communication are based on discussion, reflection and contribution among group members. In democratic leadership, criticism and praise are objectively given. Performances are usually high. New ideas and changes are developed (Ukaidi, 2016). In this case, the leader still makes final decisions but everyone get involved in brainstorming and discussion. This style works exceptionally well, when the focus is quality and not quantity. Communication is the key to this type of leadership (Sode & Onokala, 2017).

This means that subordinates must be able to communicate their ideas and thought effectively so that the leader fully understands their position if the leader is going to use the subordinate input to help complete the task. In addition, to be effective subordinates must have a working knowledge concerning the particulars of the organization. Without knowledge, subordinate cannot provide informative input or make relevant suggestions (Germain, 2012).

Autocratic leadership: This is a leadership style in which decisions are made exclusively by the leader. Autocracy believes that human beings are evil, weak, unwilling to work, incapable of self-determination, and have limited reasoning. Therefore, they must be directed, dictated to, pushed, and forced to work (Adedokun, 2008). The autocratic leader provides direction, determine policy and expect compliance. They are assertive and optimistic in nature and also lead by the ability to withhold or give rewards and sanctions. The negative side of autocratic leadership is the feeling of aggravation on the part of subordinates mostly due to the downgrading of their expansions, ideas and needs. Also there will be good production but only when the leader is present, but drop in his absence (Ukaidi, 2016). Hence, subordinates merely do what they are told, no question is allowed and no explanation given. However, this style of leadership can be effective when unskilled labour is used or in high stress situations requiring immediate actions as long as the advantages outweigh the disadvantages (Germain, 2012; Zaccaro, 2007).

Bureaucratic leadership: Bureaucracy is a formal system of organization and administration designed to ensure efficiency and effectiveness (Jones & George, 2003). Bureaucratic leadership is characterized by leaders that precisely follow rules and use positional power to influence results (Sode & Onokala, 2017). In order words, bureaucratic leadership is where the leader lead "by the book" everything must be done according to procedure or policy. If it is not covered by the book, the leader refers to the next level above them. The leader is more of a "police officer" than a leader. They enforce the rules. This style is effective when employees: perform routine tasks, need to understand certain standards or procedures; work with dangerous or delicate equipment that requires a definite set of procedures to operate; safety or security training is being conducted; or when employees perform tasks that require handling cash (Amofa et al., 2016).
Subordinates are expected to follow orders of the leader because of the authority vested with their position ((Sode & Onokala, 2017). This leadership style is beneficial in hazardous types of jobs where safety is paramount and standards are expected to be follows exactly to ensure accuracy (Germain, 2012; Zaccaro, 2007).

Transactional leadership: The wheeler-dealers of leadership styles, transactional leaders are always willing to give something in return for followership. It can be any number of things including a good performance review, a raise, a promotion, new responsibilities or a desired change in duties. The problem with transactional leaders is expectations. Transactional leadership style is defined as the exchange of rewards and targets between employees and management (Howell & Avolio, 1993). Transactional leaders fulfil employee needs of rewards when targets are met (Humphreys, 2002; Howell & Avolio, 1993; Bass, 1990).

Transformational leadership: Transformational leadership focuses on the development of followers and their needs. According to Bass and Riggo (2006), and Odumeru and Ogbonna (2013), transformational leadership improves follower motivation, morale, and performance by connecting followers' sense of self to the project and the organization's collective identity; being a role model for followers to inspire and motivate them; challenging followers to take greater ownership of their work; and understanding the strengths and weaknesses of followers in order to align followers with tasks that improve their performance. Transformational leaders focus on the development of the value system of employees, their motivational level and moralities with the development of their skills (Ojokuku et al., 2012). It basically helps follower's achieve their goals in the organizational setting; encourages followers to be expressive and adaptive to new and improved practices and changes in the environment (Bass, 2001).

Laissez-Faire leadership: This is alternatively called "free-rein". It is a leadership style that allows people to determine their own direction and function. The leader uses his power carefully, if at all, giving subordinates a high level of independence in their operations. Such leaders depend largely on subordinates to set their own goals and the means of achieving them, based on their own initiatives (Weihrich et al., 2011). The leader provides subordinates with guidance and materials then lets the subordinates develop courses of action and eventually make the decision; the leader monitor the work and answers questions of subordinates. This style of leadership can be very effective if subordinates are knowledgeable and experienced. The experienced subordinates often assume leadership roles thus accept responsibility. Generally, laissez-faire leadership results in low productivity compared to other styles of leadership (Sode & Onokala, 2017; Ukaidi, 2016).

However, the application of any of these styles largely depend on many factors such as type of goal set, the calibre of subordinates or employees, durations for the achievement of targets among many others. For instance, autocratic leadership can enforce a rule stipulating that employees wear a protective covering when handling certain duties, but same cannot be said of laissez-faire leadership. Also, democratic leadership enable leaders gain more knowledge and better commitment from subordinates than autocratic leadership.

Concept of Emotional Intelligence

The concept of emotional intelligence has been broadly defined in the literature; it has its foundation traced to back to Thorndike (1920); Moss and Hunt (1927); Guilford (1956); and Gardner (1983) works on social intelligence. In the view of Dlofan (2016); Kamalian and Fazel (2011), emotional intelligence is connected to the ability of comprehending oneself and others, communicating with other people and adapting oneself with his surrounding environment and in diverse circumstances. Awad and Kada (2012) refer to emotional intelligence as the capability to observe, articulate, assimilate, understand and regulate emotion in oneself and others. Simply put, emotional intelligence is the capability to undertake precise reasoning that is engrossed on emotions and the use of such emotional knowledge to enhance thoughts. Wiklund and Shepherd (2015) conceptualized emotional intelligence as a set of social abilities or skills aimed at monitoring, discriminating and using self and other's emotion to regulate ones thoughts and actions. Thus, emotional intelligence is a combination of competencies or skills, which according to Goleman (1995) cited in Aliyu, *et al,* (2020); Wen, *et al* (2020) take the forms of personal competence (self-awareness, self-regulation and motivation) and social competence (empathy and social skills). In this study, the two emotional intelligence (personal and social) competencies were employed.

More specifically, Davidson (2015); and Adisa, Adeoye and Okunbanjo (2016) argued that emotional intelligence is based on a set of capabilities aimed at identifying emotions effectively that can better shape innovativeness dynamic of entrepreneurial orientation. Mohammed, Fethi and Djaoued (2017); Utami (2017) noted that entrepreneurs possessing emotional intelligence act in response to the magnitude of emotions they perceived from the surrounding environment. Similarly, Wekesa, Maalu Gathungu and Wainaina (2016) opined that emotional intelligence is one of the vital dynamics that makes entrepreneurs to perform above average.

Arising from the above discuss, emotional intelligence is a measure of the level to which an entrepreneur makes use of his/her reasoning in the process of emotional responses in a given circumstance. Studies (Aliyu, *et al,* 2020; Wen, *et al* 2020; Abdullahi & Burcin, 2017) have shown that entrepreneurs who are emotionally personalized and who are able to manage their own feelings and deals effectively with other entrepreneurs' feelings will be at an advantage and be able to become more innovative. More so, entrepreneurs that has well-developed emotional skills are more probable to be effective in their industry and foster productivity.

Elements of Emotional Intelligence

Goleman (1998), Mayer, Caruso and Salovey, (1999) developed a four category models of emotional intelligence:

Self-Awareness Skills: If a one has a healthy sense of self-awareness, one understands one's own strengths and weaknesses, as well as how one's actions affect others. A person who is self-aware is usually better able to handle and learn from constructive criticism than one who is not.

Self-Management Skills: One with a high emotional intelligence can maturely reveal one's emotions and exercise restraint when needed. Instead of squelching one's feelings, the person expresses them with restraint and control.

Self-Motivational Skills: Emotionally intelligent people are self-motivated. They are not motivated simply by money or a title. They are usually resilient and optimistic when they encounter disappointment and driven by an inner ambition.

Social Skills: This has to do with the ability to manage, influence and inspire emotions in others. It involves being able to handle emotions in relationships and being able to influence and inspire others for successful teamwork and leadership.

There is the long-standing and widely held belief that women are both more emotional and more emotionally expressive than men. Women are believed to feel and express sadness more frequently than men, whereas men are believed to feel and express anger more frequently than women (Simon, 2004). Fernández-Berrocal, Cabello, Castillo and Extremera, (2012) found that women scored higher than men on emotional intelligence measures: Women were found to be more capable of decoding nonverbal emotional information, have greater emotional understanding, are more sensitive to the emotions of others and show greater interpersonal competencies. Hall and Mast (2008) asserted that women are more familiar than men with the emotional world and that this is because they are biologically prepared to perceive emotions.

Also, Sánchez-Núñez, Fernández-Berrocal, Montañés & Latorre (2010) observed that since girls develop verbal skills earlier than boys, they are more skilled at articulating their feelings and have greater expertise in the use of words. This enables them to have a larger, richer range of verbal resources at their disposal that can re-place emotional reactions like physical fights.

In Nigeria there are culturally and socially acceptable displayable emotions with regard to gender and both gender are expected to express their emotions to meet these expectations. Men were expected to react with more happiness and serenity during negative emotional situations: Thus, under very ugly situations a man is required to '*be a man'* – not to be prone to display of emotions. But at such occasions it is permitted when the woman wails, cries very loudly and pummel herself. Also in Nigeria women are accorded lower status and power than men. Thus men have more rights and privileges in political and social life while the woman's place is said to be more in the kitchen (Parkins, 2012). The woman's social life is highly guided and restricted while the man can fly like a dove. Indeed in some societies it is considered a sign of moral weakness for a married woman to frequent herself in social occasions or to display high social skills.

Who is a Business Educator?

Business educator is a person who has undergone training in business teacher education programme including certificate to teach business courses at the secondary school and post-secondary school level (Aliyu, 2016). Furthermore, anyone can be referred to as a business educator only when such has a basic knowledge of all the four options (Accounting Education, Marketing/Distributive Education, Entrepreneurship Education and Office Education) of the business teacher education programme. Business educators are professionally trained teachers of business subjects who are competent in teaching all business related courses in the faculty of education in universities and colleges of education. Business educators are trained in colleges of education and faculty of education in universities in order to acquire pedagogical and business competencies in the world of work to enable them produce competent and skillful business teachers, office administrators, entrepreneurs, businessmen and women that will effectively secure jobs and make a career from it in the world of work (Umezulike & Anozie, 2021).

Correspondingly, Ekpeyoung in Etonyeaku (2012) asserted that a teacher of business education needs to complete one's preparation for job and keep abreast of the changes in ones work place. Therefore, it is expected of every business educator to be a registered member of the Association of Business Educators of Nigeria (ABEN) which is the umbrella body responsible for the professionalization of business education in Nigeria. Ezeani (2018) viewed business educator as one who studied and is qualified in all areas of business education which is a professional field, that is providing training not only as teachers of business courses but as business secretaries, managers, accountants among others. Ezeani further stressed the importance of business educators' productivity in ensuring that students in tertiary institutions receive proper and efficient skills that are education saleable in the labour market.

Qualities of a Good Business Educator

Osuala (2013) asserted that business educator is bound to possess qualities such as: hardworking, dedication to duties, making quality decisions, self-discipline, highly knowledgeable/competent, possession of technical skills, effective communication skills and motivation, possession of problem solving skills, commitment to duties and attitudinal skills.

Leadership Styles and Emotional Intelligence of Business Educators in Nigeria

Past studies have established a link between emotional intelligence and leadership styles in many cultures and nations (Singh et al., 2021).

The study conducted by Adeyemo et al (2015) in Nigeria looked at the effects of organizational environment, leadership style, and emotional intelligence on work life quality. The participants were 250 bank employees picked from several commercial banks in Ibadan. The study posed three research questions and hypotheses. The subjects were given four reliable and validated instruments. At the 0.05 level of significance, data were analyzed using Pearson product moment correlation, multiple regression analysis, and analysis of variance. The results reveal that when the three independent factors were combined, they were successful in predicting work life quality. The three variables significantly contributed to the participants' quality of work life, with leadership styles being the most powerful predictor in the study. The results also show a significant difference in quality of work life among participants with Democratic, Autocratic, and Laissez faire leadership, with contribution s of democratic style being the most potent. Based on the findings, it was proposed that management consider the relevance and responsibilities of emotional intelligence and leadership styles in improving employee work life quality. Since, the study was carried out among bankers, this present study among business educators hopefully covered this knowledge gap.

In Iran also, Raesli et al (2016) employed a correlational strategy with two data collection tools: the Emotional Competence Inventory (ECI) questionnaire and the Multifactor Leadership Questionnaire (MLQ). The study used a stratified random sampling approach to sample 33 educational supervisors and 800 high school teachers in Tehran's District 2 and 454 teachers in proportion to the population. ECI and MLQ have reliability values of 0.90 and 0.94, respectively. The research findings revealed a significant relationship between emotional intelligence (EI) and transformational leadership style of =0.347. According to the study, the most powerful leaders all have strong emotional intelligence, and effective leaders are those that use the correct time for the benefit of their own industry and shareholders. This research was done outside Nigeria, and the participants were school administrators and supervisor rather than business educators. Therefore, this study filled a gap in the literature.

Hejase, Hamdar, Noureddin, and Nsouli (2017) found a positive and statistically significant association between managers' EI components and employees' motivation in a quantitative study conducted in Lebanon. The study looked at five different employee motivation indices and compared them to the five dimensions of Emotional Intelligence: self-awareness, self-regulation, motivation, social awareness, and social skills. The method used was quantitative parametric. The survey questionnaire was completed by 250 Lebanese employees from various organizations and industries with encouraging findings. Managers should take Emotional Intelligence seriously and undertake training on the subject, according to the study, in order to better motivate their subordinates.

Despite the fact that the research adds to our understanding of emotional intelligence by highlighting its components, it does not address the relationship between emotional and leadership styles. By establishing the relationship between emotional intelligence and business educator's leadership styles in Nigeria, this study will fill a gap in the literature.

In Africa, the findings of a few known studies on the relationship between emotional intelligence and leadership are not on the contrary either. A sample size of 973 individuals was used to study the link between emotional intelligence and leadership among senior leaders in a South African financial services business (Du Toit, Viviers, Mayers, &Visser, 2017). Because the leaders were involved in the strategic organizational endeavor and completed measurement instruments as part of the process, convenience sampling was used. The leadership data came from an organization-specific multi-rater that accessed self-ratings, peer and subordinate evaluations, as well as manager ratings in terms of leadership behaviors linked to organizational worldviews of leadership effectiveness. The leadership data came from an organization-specific multi-rater that looked at self-ratings, peer and subordinate assessments, and manager ratings of leadership behaviors in relation to organizational worldviews of leadership performance. The findings showed a relationship between emotional intelligence and leadership but with poor predictive strength.

In Kenya, a study done by Chepng'eno and Ngui (2017) was to evaluate the relationship between Emotional Intelligence (EI) and managerial leadership styles in selected Kenyan financial organizations. It was hypothesized that emotional intelligence (EI), defined as the capacity to notice, analyze, and control emotions, predicts transformational leadership (TL) style. The Emotional and Social Competency Inventory (ESCI) was used to assess the leaders' EI, while the Multifactor Leadership Questionnaire was used to assess perceived leadership styles (MLQ-5x). Six banks provided a sample of 60 leaders and 240 ratters. The data was analysed using Spearman's Correlation, and the results revealed a positive relationship between leaders' EI ratings and TL style. A more in-depth examination revealed a favourable link between EI and the contingent reward for active Management-by-exception (MBE) components of transactional leadership. On the other hand, negative relationship between EI and passive MBE as well as laissez-faire leadership style were discovered, leading to the conclusion that EI predicts leadership styles. While still substantial, the study was not carried out in Nigeria and did not include business educators. This study covered this literature gap by focusing on business educators in Nigeria.

In North America, Beckles (2018) also did a quantitative study on the contribution of emotional intelligence (EI) to leadership style and effectiveness. To investigate how much emotional intelligence contributes to leadership style and leader performance, a quantitative correlation multiple regression analysis was performed. According to the findings, emotional intelligence substantially predicts effective leadership, and interpersonal skills (assertion) appear to be the driving force behind this association. The findings were used to develop leadership training programs that encourage and support the influence of emotional intelligence on IT professionals' leadership style in the context of effectiveness and the value of these skills in managing change, reducing risks, and increasing organizational success through effective relationships and productive relationships. This research work, made an important contribution to the pool of knowledge. However, this present study in Nigeria covered the gap in literature.

A study carried out by Potter et al (2018) determined the most common leadership style used by construction project managers and looked into potential links between leadership style and emotional intelligence in New Zealand and the United Kingdom. To achieve the research aims, an online questionnaire with a combination of open and closed questions was used. According to the findings, transformational leadership is prominent among the project managers studied in this study. There was a significant positive link between project managers' emotional intelligence and their chance of adopting a transformational leadership style. Recommendations for strengthening leadership capacities in the construction sector included adequate procedures for finding, hiring, and training project managers, as well as recruitment agency and mentorship possibilities.

Like other previously highlighted studies, the findings are no doubt resourceful but focused on only one leadership style of project managers. This present study therefore, added to the existence literature by focusing on different leadership styles of business educators.

In a quantitative study done in Iran, Rastgar et al. (2018) investigated the outcomes of research undertaken to assess the correlation between different management styles and emotional intelligence among Shiraz District 2 high school administrators. Given the nature of the investigation, the technique of investigation was descriptive-correlational. The study's population comprised of 33 educational department supervisors and 454 education ministry instructors in Shiraz's District 2. In the study, measuring methods comprised the Emotional Empowerment Questionnaire and the Multiple Leadership Questionnaire, with reliability coefficients of ra = 0.9 and ra = 0.94, respectively. The results showed that: 1). Emotional intelligence and transformational leadership style have a correlation coefficient of 0.347, which is significant at the p0.05 level. As a result, emotional intelligence and transformative leadership style are closely linked.2). Emotional intelligence and interactive leadership style have a correlation coefficient of 0.269, which is not statistically significant at the 0.05 level. As a result, no statistically significant relationship exists between emotional intelligence and participative leadership style. 3). Emotional intelligence and non-interventional leadership style have a correlation coefficient of 0.044, which is not statistically significant at the p0.05 level. As a result, no statistically significant relationship exists between emotional intelligence and non-interventionist leadership style. This research was not carried out in Nigeria, and the participants were school administrators/managers rather than Business educators. As a result, the current study filled a gap in the literature.

Another study in Kenya done by Ntarangwe (2021), examined the relationship between the emotional intelligence and career adaptability of the academic staff of some selected universities in Nairobi County. The study used the mixed method of explanatory sequential design and was based on the two theories of Goleman and Savickas. The sample of 201 out of the total population of 403 academic staffs from 3 universities participated in the study. The study's main findings revealed a weak significant positive relationship between the four components of emotional intelligence and career adaptability constructs. Furthermore, overall emotional intelligence was found to have a moderately positive relationship with career adaptability. As a result, the research's main suggestion was to improve workers' job adaptability through emotional intelligence trainings, guidance and counselling, and team building. While the study is current and useful in the area of emotional intelligence, it did not address the leadership styles. Again, the study was conducted in an academic environment. However, the present study filled the research gap by looking at the relationship between emotional intelligence and leadership styles among business educators.

It can be seen that majority of the reviewed literatures have their areas of interest different from that of the present study. One of the key differences is their focus on the relationship between emotional intelligence and other variables rather than leadership styles. Thus, this serves as a knowledge gap which the present study sought to fill.

Conclusion

This paper has shown that leadership is essential to the success of an individual. The presence of good leadership enforces good corporate behaviour, enhances goal attainment, and drives employee satisfaction. Therefore, good leadership is crucial in the dealings of every Business Educator, which is in itself is critical to good organizational performance in terms of products or service delivery. In other words, leadership in organizations dictate organizations' performance. Leadership with good human relation is central in any organization as it is often said that good leadership is the backbone for organizational growth and development. On the hand, bad leadership lead to poor organizational performance, if the leadership of the organization is incompetent, the activities of its components will be expected to be negatively affected, the structural coordination and control of activities of individual members of the organization will become challenging.

Recommendations

Therefore, this paper recommends that:

i. Leaders in organizations should possess leadership qualities and adopt effective leadership styles that facilitates the realization of both cooperate and individual goals.
ii. In addition, leaders should develop good human relations skills and lead subordinates towards purposeful, optimistic and achievable goals.
iii. An effective leader must be able to delegate. Regardless of the situation or position leaders find themselves; it is critical to recognize that they cannot do everything alone.
iv. Good leaders understand that delegation entails more than merely delegating a task to another person. It entails trusting and believing in the employees' ability to do the task at hand.
v. A competent leader must have a deep knowledge of human interactions, especially when task is performed by subordinates. Leaders gain healthy respect when they develop and understand acceptable human relations abilities.
vi. Employment should be structured and work schedules should be organized based on the human relations theory to ensure that people have meaningful work, a sense of responsibility, and the opportunity to participate in decisions that influence their careers.

REFERENCES

Abba, U. E., Anazodo, R. D. & Okoye, J. C. (2004). *Management and organizational behaviour: Theories and applications in Nigeria.* Abbot Books Ltd.

Abdullahi M. & Burcin K. (2017). Entrepreneurial characteristics and competencies as determinants of corporate performance: A study on small enterprises in Mogadishu, Somalia. *International Journal of Research -Granthaalayah,* 5(5), 243-254.

Adedokun, J. O. (2008). Leadership roles in an organization. *Journal of Administrative Studies and Social Sciences, 1*(1), 33-41.

Adeyemo, D.A., & Ogunyemi B. (2015). Emotional intelligence and self-efficacy as predictors of occupational stress among academic staff in a Nigerian university. *Electronic Journal of Organizational Learning and Leadership,* 4.

Adisa, M..K., Adeoye, A.O. & Okunbanjo, O.I (2016). Impact of entrepreneurship orientation on entrepreneurs compensation in Nigeria. *International Journal of Economics, Business and Management Studies,* 3(3), 102-116.

Aliyu, M.M. (2016). *Business education in Nigeria (trends and issues).* Goshan Print Media Ltd.

Aliyu S.M., Rogo B.H. & Mahmood R. (2020). Knowledge management, entrepreneurial orientation and firm performance: The role of organizational culture. *Asian Social Science,* 11(23), 1-12

Amofa, A, K., Okronipa, G. A. & Boateng, K. (2016). Leadership styles and organisational productivity: A case study of Ghana cement limited. *European Journal of Business and Management, 8*(2), 131-143.

Awad, M.S. & Kada A.H. (2012). Emotional intelligence and entrepreneurial orientation: The moderating role of organizational climate and employees' creativity. *Journal of Research in Marketing and Entrepreneurship,* 14á 115-136.

Bass, B. & Riggio, E. (2006). *Transformational leadership*. Lawrence Erlbaum Associates.

Bass, B. M. (1990). *Handbook of leadership: Theory, research and managerial applications (3rd edition).* Free Press

Bass, B. M. (2001). *Transforming leadership.* Lea Publishers.

Chepng'eno, M., & Ngui, T. (2017). Relationship between Emotional Intelligence and Leadership Styles: A Case Study of Leaders in Selected Banking Institutions in Kenya. *International Journal of Research in Humanities and Social Studies,* 4(2). https://doi.org/10.22259/ijrhss.0402001.

Dapke, D. (2016). Impact of leader's emotional intelligence and transformational behavior on perceived leadership effectiveness: A multiple source view. *Business Perspectives and Research 4*(1), 27–40. doi:10.1177/2278533715605433.

Davidson, P. (2015). The effects of entrepreneurship education on university students' attitude and entrepreneurial intentions. *European Journal of Business and Management,* 7(20), 149-157.

DeRue, S. & Myers, C. (2013). Leadership development: A review and agenda for future research. The Oxford Handbook of Leadership and Organizations, 37, 832-855.

Dlofan, A.S (2016). Investigating the relationship between emotional intelligence and entrepreneurial behavior. *Journal of University of Duhok,* 2(1), 29-42.

Du Toit, A., Viviers, R., Mayer, C. H. & Visser, D. (2017). Emotional intelligence and leadership in a South African financial services institution. *South African Journal of Labor Relations,* 41(1), 1-14.

Etonyeaku, E.A.C. (2012). Vocational business education and counselling: Panacea for achieving sustainable poverty reduction and wealth creation. *Nigerian Journal of Voc. Association (NJVA),* 17(1), 134-140.

Ezeani, N.S. (2018). *Fundamentals of accounting.* Ifevic Publishers Ltd.

Fernández-Berrocal, P., Cabello, R. Castillo, R. & Extremera, N. (2012).Gender differences in emotional intelligence: The mediating effect of age. *Behavioral Psychology/ PsicologíaConductual, 20(1), 77-89*.

Fiori, M., & Antonakis, J. (2012). Selective attention to emotional stimuli: What IQ and openness do, and emotionalintelligencedoesnot. Elsevier Intelligence, 40, 245-254. doi:10.1016/j.intell.2012.02.00.

Gardner, H. (1983). *Frames of Mind: the theory of multiples intelligence*. Basic Books. Basic Books Paper back.

Gayathri M.S. and Vimal, B. (2013). An Empirical Study on Emotional Intelligence Competencies of Employees in Chemical Industry at Tamilnadu. *Interdisciplinary Journal of Contemporary Research in Business,* 4(4) 1230-1241.

Germain, M. (2012). Traits and skills theories as the nexus between leadership and expertise: Reality or fallacy. *Performance Improvement, 51*(5), 32-39*: DOI: 10.1002/pfi.21265*.

Goleman.D.2002.An EI based theory of performance: The emotionally intelligent work place. How to select for, measure and improve emotional intelligence in individuals, groups and organizations. 27-44 Goleman.D.1995. Emotional intelligence. New York. Bantam.

Goleman, D. (1995). *Emotional intelligence.* Bantam Books, New York, USA.

Goleman, D. (1998).*Working with emotional intelligence.* Bantam.

Goleman, D. (2005). *Emotional intelligence* clays ltd, Stives Plc.

Goleman, D. (2013). Primal Leadership: Unleashing the Power of Emotional Intelligence. Harvard Business Review Press.

Howell, J.M. & Avolio, B.J. (1993). *Transformational Leadership, Transactional Leadership, Locus of Control, and Support for Innovation: key Predictors of Consolidated Business-un it Performance*. *American Psychological Association,* 891 -902**.**

Humphreys, J. H. (2002). Transformational leader behaviour, proximity and successful service marketing. *Journal of Service Marketing*, *16*(6), 487-502.

Jones, G. R., & George J. M. (2003). *Contemporary management (3rd edition).* McGraw-Hill Irwin.

Kamalian, A. and Fazel, A. (2011). Examining the relationship between Emotional Intelligence and Students' Entrepreneurship. *Journal of Entrepreneurship Development,* 3(11), 127-146.

Mayer, J. D. (2005). A tale of two visions: Can a new view of personality help integrate psychology? *American Psychologist,* 60, 294-307.

Mayer, J. D., Caruso, R., &Salovey, P. (1999). Emotional intelligence meets traditional standards for an intelligence. *Intelligence, 27*, 267–298.

Ntarangwe, M. (2021). Emotional Intelligence and Career Adaptability of Academic Staff in Kenya: A Case of Selected Universities in Nairobi County. Unpublished Doctoral Dissertation.

Odumeru, J. A. & Ogbonna, I. G. (2013).Transformational vs. transactional leadership theories: Evidence in literature. *International Review of Management and Business Research*, *2*(2), 355-361.

Ojokuku, R. M., Odetayo, T. A., & Sajuyigbe, A. S. (2012). Impact of Leadership Style on Organizational Performance: A Case Study of Nigerian Banks. *American Journal of Business Management,* 1(4), 202-207.

Osuala, E.C. (2013). *Principles and methods of business and computer education.* Godjiksons Publishers.

Parkins, R. (2012). Gender and emotional expression: An analysis of prosodic features in emotional expression. *Grifiths Working Paper in Pragmatic and Intercultural Communication,* 5(1), 46 – 54.

Rastgar, M., Bozorginezhad, K., Ghorbani, N., & Shahamat, N. (2018). Evaluating the relationship between different leadership styles and emotional intelligence among managers of educational departments (Case Study: schools Shiraz). Betriebswirtschaftliche Forschung Und Praxis, 9(2). https://doi.org/10.21859/bfup-09022.

Sánchez-Núñez, M. T., Fernández-Berrocal, P., Montañés, J., Latorre.J.M. (2010). Does emotional intelligence depend on gender? The socialization of emotional competencies in men and women and its implications. *Electronic Journal of Research in Educational Psychology,* 6(2) 455-474.

Simon, R. W. (2004). Gender and emotion in the US: Do man and woman differ in self-report of feelings and expression of behavior. *American Journal of Sociology,* 109(5), 1137 -78.

Singh, E. H., Dorji, N., Zangmo, L., Rigyel, L., Wangchuk, N., Tamang, L. D., & Zangmo, N. (2021). A Study on the Relationship Between Emotional Intelligence, Leadership Styles and Perceived Leadership Effectiveness in Bhutan. Global Business Review. https://doi.org/10.1177/0972150920978121.

Sode, O. O., & Onokala, U. C. (2017). Leadership style effectives for improved managerial performance in Nigerian organizations. *University of Lagos Journal of Business, 3*(1), 53-79.

Thorndike, E. (1920). Intelligence and its use. Harper's Magazine, 140, 237-235.

Ukaidi, C. U. A. (2016). The influence of leadership styles on organizational performance in Nigeria. *Global Journal of Human Resource Management, 4*(4), 25-34.

Utami C.W. (2017). Attitude, subjective norms, perceived behavior, entrepreneurship education and self-efficacy toward entrepreneurial intention university student in Indonesia. *European Research Studies Journal,* X(2A), 475-495.

Weihrich, H., Cannice, V. M., & Koontz, H. (2011). *Management: A global and entrepreneurial perspective (13th edition).* Tata McGraw-Hill Inc.

Wekesa, L., Maalu J.K., Gathungu J., & Wainaina, G. (2016). Effect of entrepreneur characteristics on performance of non timber forest products small and medium enterprises in Kenya. *DBA Africa Management Review,* 6(3), 16-26.

Wen, Y., Chen, H., Liman, P.L. & Gu, X. (2020). The relationship between emotional intelligence and entrepreneurial self-efficacy of chinese vocational college students. *International Journal of Environmental Research and Public Health. Available at doi:* 10.3390/ijerph17124511.

Wiklund, J. & Shepherd, D. (2015). Entrepreneurial orientation and small business: A configurational approach. *Journal of Business Venture,* 20(1), 71-91.

Zaccaro, S. J. (2007). Trait based perspectives of leadership. *American Psychology, 1*(62), 6-16.

CONTEMPORARY ISSUES TO EFFECTIVE ADMINISTRATION OF PUBLIC SENIOR SECONDARY SCHOOLS IN SOUTH-SOUTH REGION, RIVERS AND BAYELSA STATE

Dr. Chijioke Clancy Amadi
Department of Educational Management
Faculty of Education
Ignatius Ajuru University of Education
Rumuolumeni, Port Harcourt
Rivers State, Nigeria
chijiokeclancy@gmail.com
+234 8035 406780

Kenneth-Okedi, Imereoma Worlu
Department of Educational Management
Faculty of Education
Ignatius Ajuru University of Education
Rumuolumeni, Port Harcourt
Rivers state, Nigeria
Nisamd4u@yahoo.com
08037963778

ABSTRACT

The study investigated contemporary inhibiting factors to effective administration of public senior secondary school in South-south region Rivers and Bayelsa State. Four research questions and hypotheses guided the study. The population of this study comprised all the 13193 teachers and principals in the 435 public senior secondary schools in Rivers and Bayelsa State. The sample size of the study was 1406 (130 principals and 1276 teachers) respondents. Non proportionate sampling technique was used to arrive at the sample. A self-designed instrument titled "Contemporary Inhibiting Factor to Effective Administration of Public Senior Secondary Schools in Rivers and Bayelsa State Questionnaire (CIEAPSSS)" was used for data collection. Face and content validities were ensured by experts. The Cronbach alpha was used to get the reliability coefficient of CIEAPSSS to be 0.88 while the subscales of Lack of ICT, Low staff Morale, Inadequate Facilities and Inadequate Funding were 0.81, 0.71 and 0.76 respectively. Mean and standard deviation were used to answer the research questions while z-test was used to test the null hypotheses at 0.05 level of significance. It was found that principals and teachers agreed to a high extent that lack of ICT, low staff morale, inadequate facilities, and inadequate funding influence effective administration of public senior secondary schools in Rivers and Bayelsa State. It was recommended that The Ministry of Education, State and Local government should provide basic ICT facilities such as computer, printer, flash, modem among others can enhance effective administration. The Ministry of Education should use reward systems such as recognition and delegation for professional development in order to enhance the morals of staff of secondary schools in Rivers State.

Keywords: *Contemporary issues, School Administration, Public Senior Secondary School, Rivers and Bayelsa State.*

INTRODUCTION

Educational administration is a discipline within the study of education that examines the administrative theory and practice of education in general and educational institutions and educators in particular. Effective school administration therefore implies the application of administrative theory and practice on education as it relates to the school, teachers and students.

The school administration is therefore narrowed to personnel administration, personnel management also known as human resources management is the life wire of any organization. Therefore it is the effective mobilization of people in the organization to achieve the desired goals in the constituted organizations. Effective school administration has become the only way to stay innovative and a viable means to provide qualitative and functional education, specifically for the less developed countries like Nigeria (LDC), the prime purpose of the school is for effective teaching and learning so that individual can become a better citizen and contribute meaningfully to the growth and development of the state. There is no doubt whatsoever that a lot of factors have hindered this laudable objectives from the original purpose it was established for.

The concept of a school as a social system is central to our proper understanding of the nature and dynamism of school administration the relationship between the various component is central to the several of the whole organizations. The administrator issue that is central to the school as a social system is the issue of equipping the school with modern facilities that can promote teaching and learning; and how teachers can be at right frame of mind to implement the curriculum. These facts came to the fore, when Agabi (2004) affirmed that "The basic administrative challenges in the school system are to ensure a proper functioning of various component parts to ensure that school goals are met. He further stressed that "a poor response to action or inactions of teachers, students, and so on can jeopardize the proper functioning of the school. The basis essence of school management is to co-ordinate the use of both human and material resources in implementation of the overall school task to achieve the overall school objectives.

Practically, school administration is essential for healthy functioning of the school system. The school provides the society very vital opportunities to prepare its youths for eventual management of its economy in every sphere of the nation's life. The school transmits the acceptable value and norms of society to learners. However, Abraham (2003) affirmed that "the school is a complex organization that has goals, it set out to achieve. Also the products of the school are human being.
Most importantly, there is a paradigm shift in knowledge globally, and Nigeria educational system must change with the rest of the world since the school administration become very necessary for school survival. It is consequences upon this, that effective school administration becomes critical issues worthy of consideration. The success or failure of school rest upon a number of factors, and school administration is one. Surpass to say that human resources and all facilities is critical elements in safe guarding the administration of the school system. A great numerable of problems that plague our school system today are traceable to poor application administrative challenges. Our educational administrators as a matter of fact are ill-equipped for the job. In this technology of advancement age most school administrators and teachers are yet to boot a computer.

Apparently, in every organization there is need to galvanize the actions of human resources (personal) to achieve the pre-determined goals well motivated workforce put in their best for the survival of the organization. To achieve some meaningful goals effective school administrative is imperative.
Secondary school in Nigeria is being headed with a leader (principal) who manages and oversees all activities within the school. Managerial constraints is refers to school administrators (principal) inability to perform his administrative functions effectively. For instance most school principal cannot make clear the school objective for which the school was primary set up to accomplished.

Practically, it has been rightly observed that the relationship that co-exist between the school administrator and his subordinates can result in increase and decrease in their job performance. Most principal do not have good atmosphere relationship with its staff due to selfish interest they intend to achieve. It is pertinent to note that for school to achieve its goals, it requires the collective efforts of an individual, to enable smooth functioning of school. But now days principal does the work of vice principals, teachers and so on. Collections of charges and procurement of instructional facilities is been handled by the principal.

Research studies has proven that teachers and other staff not involvement in decision making process in school by the school administrator limits the school chance of accomplishing quality education delivery. One noticeable of aspect of this act by the principal on the side of teachers and others staff is that, it will reflect in teachers low commitment in discharging their duties effectively. Hoy and Miskel (2008) asserts that involvement of teachers and others staff in decision making in school will make them create more ideas for the organizational wellbeing.

Statement of the Problem

It is quite glaring that effective school administration is essential for a healthy school functioning. It appears that, there are a lot of factors inhibiting the system from achieving its goals. These problems ranges from low staff morale, which has resulted in teachers low commitment to duty, lack of ICT's which has hindered teachers and learners in exposing them to the world of work, student's indiscipline, which has resulted to breakdown of law and orders in school, and inadequate funding which has limit in procurement of modern facilities that would facilitate teaching and learning. It is in the light of the above that this research was carried out to find out whether these variables listed are actually contemporary inhibiting factors to effective school administration in public senior secondary school in South-south region Rivers State and Bayelsa State.

Aims and Objectives of the Study

The aim of this study is to find out the contemporary inhibiting factors to effective administration of public senior secondary school in south south region Rivers and Bayelsa State and offer result to it.
Specifically, the study sought out to attain the following objectives:

1. to determine the extent lack of ICTs influence the effective administration of public senior secondary school in Rivers and Bayelsa State.
2. to examine the extent to which low staff morale influence the effective administration of public senior secondary school schools in Rivers and Bayelsa State.
3. to find out how inadequate facilities influence the effective administration of public senior secondary school in Rivers and Bayelsa State.
4. to establish the extent inadequate funding influence the effective administration of public senior secondary school in Rivers and Bayelsa State.

Research Questions

The following research question was used to guide the study:

1. to what extent does lack of ICTs influence effective administration of public senior secondary school in Rivers and Bayelsa State?
2. to what extent does low staff morale influence the effective administration of public senior secondary school in Rivers and Bayelsa State?
3. to what extent does inadequate facilities influence the effective administration of public senior secondary school in Rivers and Bayelsa State?
4. to what extent does inadequate funding influence the effective administration of public senior secondary school in Rivers and Bayelsa State.

Hypotheses

H_1: There is no significant difference between the mean scores of principals and teachers on the extent to which lack of ICT influence the effective management of public senior secondary school in Rivers State.

H_2: There is no significant different between the mean scores of principals and teachers on the extent to which low staff moral influence the effective management of public senior secondary school in Rivers State.

H_3: There is no significant difference between the mean scores of principals and teachers on the extent to which inadequate facilities influence the effective administration of public senior secondary school in Rivers and Bayelsa State.

Concept of School Administration

School administration is harnessing of all the resources for implementation of education objective. It involves condition of individual's efforts to achieve educational objective. Conceptualizing school administration Johnson (2013) saw school administration as the school main governing body, and it plays a major role in making decisions related to students, faculty and the school's overall status.

Administration according to Peretomode (2003) is the component of the management concerned with facility accomplishment of the objective of an organization like school through the systematic management of constraints and careful utilization of available limited resources like human, material, finance and so on. Okeke (2004) sees secondary school administration as involving the provision and maintenance of necessary manpower to those who teach children with a view to bring about the desired change in the children's behavior. The school administrative encounter numerous administrative problems which militate against operate running of their schools. These include inadequate and low staff moral inadequate funding to maintain schools and paying teachers salary. Others include indiscipline behavior on the part of teachers and students, where the school administrator fails to arrest these situations, the smooth running of the school will be impede.

Administration involves the application of rules, procedures and policies already planned to accomplished the organizational goals. It is a concern with applying rules procedures and policies in a way that allows the achievement of defined objectives within an organizational setting. Administrative ensure that predetermined objectives of organization actualized. Administration has the duty to organize the people with which various tasks in the various unit will be performed. The available tools and equipment for executing planned of action rest with it. It has the duty of harmonizing human and material resources at the minimum cost inputs. Akpakwu (2008) view it as a process of using methods, principles and practices to establish, develop and execute goals, policies, plan and task oriented.

Administration is the means by which formal goals are achieved through cooperative human effort. It is the art and science of getting things done efficiently. (Nwankwo, 1987:7) considers administration as the careful and systematic arrangement and use of resources, situation, and opportunity for achievement of specific objectives of a given organization. Therefore the study will be reviewed under the following, lack of ICT, inadequate funding, lack of facilities and low staff morale.

Lack of Information and Communcation Tecnologies (ICTs)

Education as a field of study has been affected by the ICTs. Most teachers cannot operate and manipulate computers. Modern day teaching and learning cannot be achievable without ICTs. ICT's have the capability to fast track, enhance and improve quality. ICT's helps to widen student mental ability and expose them to the world of work – ICT plays a key role to depend skills, to motivate and engage students, to help relate school experience to work practices create economic viability for tomorrows workers, as well as strengthening teaching and helping school change. In a changing world, basic education is important for an individual to be able to access and apply information. The economic commission for African has indicated that the ability to access and use information is no longer a luxury, but necessity development.

Ideally, the need for ICT in public senior secondary school cannot be overemphasized in this technology driven age. Every one requires ICT to survive and meet up to the latest trend. The ability to use computers effectively has become a serious concern, essential part of every one's education. Skills such as clerical work bookkeeping, administrative work, stock taking and so on constitute a set of computerized practices that form the core ICT skills package. Spreadsheets, word processors and database most public secondary schools lack computer literate teachers and experts that would support and manage the application of computing in teaching learning process.

Apparently, all over the globe it has been rightly observed that information and communication technologies (ICT) has influenced the daily lives of people of all walks of life in the daily lives of people all walks of life in this 21st century. Secondary education cannot be left out. Today, information and communication technology (ICT), which enables fast access to information from anywhere, has become an indispensable part of our lives.

According to Aktumen and Kucar (2003) asserts that, using a computer and interest connection in the classroom increases students' success. However, some other studies have proven that there are no positive effects of using technologies in the classroom can have a positive effect on the student's success levels academically.

Low Staff Morale

Outrightly, teachers has remained the centerpiece of every educational system. No educational system can ascend higher than the superiority of its teachers. The teacher has always been main stays of intellectual and cultural progress of any society, and the cornerstone of personal happiness of every students that is why the Federal Republic of Nigeria (2004), asserts that teachers education will continues to be given a major emphasis in all educational planning. The success of instructional programme depends on the teachers, this is so because the teacher is the key agent of curriculum implementation.

Practically, teachers who are not in the right frame of mind cannot execute their job as anticipated in the school structure. According to Uche (2009), stated that condition of service of teachers, efficiency, and morale are the basic relevant thing that can affect teacher rate and can only decides their level of their commitment. Also Olaintain (2006) stated that if human beings are properly managed by what they see as rewarding to their task. Teachers lack of support, irregular salary poor pay parcel, public view of their job have weaken the morale of teachers in performing their task when teachers are not given incentives their strength of task pledge can be downsized and the purpose of school becomes unrealistic. Fadipe (2003) suggested that teachers, apart from the students, are the most essential tools or machinery in transforming of an educational institution. He goes further to say that teacher to a large extent determine attainment of school productiveness.

Nevertheless, low staff morale can be harmful in the school system and can lead to how productivity discontent, lateness to school and absenteeism. Low staff moral in an organization causes a separation between employers, educational managers and the school. Continuous rising of low staff morale can eventually leads to breakdown in an organization. Well motivated teachers enjoy bringing new concept to the organization on how to increase organization workforce.

Inadequate Facilities

As the name implies, it includes all the building and equipment in the school that help to enhance teaching and learning. Administration of secondary school is worrisome as a result of infrastructural facilities. Large number of secondary schools suffers an immense deprivation of facilities that aid teaching and learning. This kind of situation has consistently posed enormous challenges to school heads.

According to Jaiyeoba and Atanda (2003) posited that educational facilities are those things which enables skilled teacher to accomplished a level of instructional effectiveness. The state of infrastructural decay in many secondary schools today is a clear indication of poor funding of the school system. Ahmed (2003) revealed that in most of the nation's secondary schools, teaching and learning takes place under a most unconducive environment, lacking the basic materials, thus hindered the school from realizing the goals of education.

Inadequate Funding

Just as the name implies, inadequate funding is a major challenge confronting achievement of quality education. The achievement of every educational system rest upon the finance available. Finance plays notable key roles in management of school, whereas without it the entire diverse important components in the school system cannot be acquired such like physical resources, remuneration of wages, and allowances. Keller (2012) asserts that inadequate funds to maintain schools and pay teachers salaries are among the factor inhibiting the smooth administration of secondary schools. This ugly situation puts pressure on school administrator to deliver quality education as expected. There is no doubt whatsoever, that the inadequate funding of the secondary school system has hindered the achievement of some of the aim and objectives of this level of education as it is stated in the national policy education. Effort for school administration to take its normal role prove abortive due above stated challenges.

Methodology

The design for this study was descriptive survey, the population of the study comprised all the 13,193 teachers and principals in the 435 public senior secondary schools in Rivers and Bayelsa State. There are 247 principals and 8452 teachers in Rivers State, while Bayelsa state has 188 public senior secondary school with 188 principals and 4306 teachers (Source: Rivers State Post Primary School Board: Research Planning and Statistics Department 2018 and Ministry of Education Bayelsa State, 2018),a sample size of 1406 (130 principals and 1276 teachers) respondents. The non-proportionate stratified random sampling technique was used to arrive at the sample. The 30% of 247 principals in Rivers gave 74 principals while the same percentage (30%) of 188 principals in Bayelsa State gave 56 principals. On the other hand, 10% of 8452 teachers in Rivers State gave 845 teachers while the same percentage (10%) gave 431 teachers from 4306 teachers in Bayelsa State. The respondents of this study responded to 16-item instrument titles; "Contemporary Inhibiting Factor to Effective Administration of Public Senior Secondary Schools in Rivers and Bayelsa State Questionnaire (CIFEAPSSS)" was used for data collection with a reliability coefficient of 0.88, design by the researcher in the modified 4-point likert scale Model. Mean ($\bar{x}$) and standard deviation (SD) were used in answering the research questions with the z-test statistics were used in testing the null hypotheses, at 0.05 level of significance.

Results

Research Question 1: To what extent does lack of ICTs influence effective administration of public senior secondary school in Rivers and Bayelsa State?

Table 1: Mean Score on the Extent Lack of ICT Influence Effective Administration

S/NO	Items	Principals = 30		Teachers = 1276	
	Lack of ICT	**Mean**	**Decision**	**Mean**	**Decision**
1.	Limits teachers performance in school	3.14	HE	3.04	HE
2.	Affect student exposure in school	2.81	HE	3.51	HE
3.	Influence quality education delivery	3.16	HE	2.76	HE
4.	Influence effective school management	2.76	HE	3.86	HE
	Aggregate mean	2.97	HE	3.29	HE

Table 1 revealed that items with serial numbers 1, 2, 3, 4 and 5 have mean values above the criterion mean value of 2.50 and were therefore, agreed by the respondents as the ways lack of ICTs can inhibit effective administration in secondary schools in Rivers. The aggregation mean values of 2.97 and 3.29 by the principals and teachers showed that lack ICTs influence effective administration to a high extent.

Research Question 2: To what extent does low staff moral influence the effective administration of public senior secondary school in Rivers and Bayelsa State?

Table 2: Mean Score on the Extent Low Staff Morale Influence Effective Administration

S/NO	Items	Principals = 30		Teachers = 1276	
	Low staff morale	**Mean**	**Decision**	**Mean**	**Decision**
5.	Constitute low standard of education	2.045	HE	2.881	HE
6.	Limit student performance	3.076	HE	2.548	HE
7.	Weaken school activities	2.971	HE	2.562	HE
8.	Limit teacher commitment to duty	2.856	HE	2.578	HE
	Aggregate mean	2.74	HE	2.64	HE

Table 2 showed that items 5, 6, 7 and 8 have mean values above the criterion mean value of 2.50 and was agreed by the respondents as the influence of low staff moral on administration of secondary schools in Rivers. The aggregation mean values of 2.74 and 2.64 by principals and teachers showed that low staff moral influences effective administration in secondary schools in Rivers State.

Research Question 3: To what extent does lack facilities provision influence the effective administration of public senior secondary school in Rivers and Bayelsa State?

Table 3: Mean Score on the Extent Lack of Facilities Provision Influence Effective Administration

S/NO	**Items**	**Principals = 30**		**Teachers = 1276**	
	Inadequate facilities	**Mean**	**Decision**	**Mean**	**Decision**
1.	Constitute poor academic performance of student	2.951	HE	2.881	HE
2.	Influence poor quality education delivery	2.708	HE	2.880	HE
3.	Limit teachers performance in the classroom	2.644	HE	2.662	HE
4.	Limit student area of specialization choice in school	2.868	HE	2.868	HE
	Aggregate mean	2.79	HE	2.82	HE

Research Question 4: To what extent does inadequate funding influence the effective administration of public senior secondary schools in Rivers and Bayelsa State?

S/NO	**Items**	**Principals = 30**		**Teachers = 1276**	
		Mean	**Decision**	**Mean**	**Decision**
1	Constitute poor performance of principal	3.001	HE	2.644	HE
2.	Limit accomplishment of aim and objectives in the school	2.722	HE	3.000	HE
3.	Teacher participation in examination malpractice	3.001	HE	2.856	HE
4.	Limit lack of instructional materials in schools	2.634	HE	3.010	HE
	Aggregate mean	2.84	HE	2.8775	HE

Hypotheses

H_1: There is no significance difference between the mean scores of principals and teachers on the extent to which lack of ICT influence the effective management of public senior secondary school in Rivers State.

Table 5: Z-test Statistics on the Mean Difference Between Principals and Teachers on the Extent to which Lack of ICT Influence Effective Management

Variables	N	Mean	Std	Df	z-cal	z-crit.	Decision
Principals	130	2.47	0.76				
Teachers	1276	3.29	0.51	1404	4.57	1.96	Rejected

Table 5 revealed that principals have mean and standard deviation scores of 2.47 and 0.76 while teachers have mean and standard deviation scores of 3.29 and 0.51 respectively. With degree of freedom of 1404, the calculated z-value of 4.57 is above the criterion value of 1.96. Therefore, the null hypothesis is rejected. By implication, there is a significant difference between the mean scores of principals that teachers on the extent to which lack of ICT influence the effective management of public senior secondary school in Rivers State.

H_2: There is no significant difference between the mean scores of principals and teachers on the extent to which low staff morale influence the effective management of public senior secondary school in Rivers State.

Table 6: Z-test on the Mean Difference Between Principals and Teachers on the Extent to which Low Staff Morale Influence Effective Management

Variables	N	Mean	Std	Df	z-cal	z-crit.	Decision
Principals	130	2.74	0.91				
Teachers	1276	2.64	0.94	1404	1.25	1.96	Accepted

Table 6 revealed that principals have mean and standard deviation scores of 2.74 and 0.91 while teachers have mean and standard deviation scores of 2.24 and 0.94 respectively. With degree of freedom of 1404, the calculated z-value of 1.25 is below the critical value of 1.96. Therefore, the null hypothesis is accepted. By implication, there is no significant difference between the mean scores of principals and teachers on the extent to which low staff moral influence the effective management of public senior secondary school in Rivers State.

H_3: There is no significant difference between the mean scores of principals and teachers on the extent to which inadequate facilities influence the effective administration of public senior secondary school in Rivers and Bayelsa State.

Table 7: Z-test on the Mean Difference Between Principals and Teachers on the Extent to which Low Inadequate Facilities Influence Effective Management

Variables	N	Mean	Std	Df	z-cal	z-crit.	Decision
Principals	130	2.79	0.81				
Teachers	1276	2.82	0.85	1404	0.43	1.96	Accepted

Table 7 revealed that principals have mean and standard deviation scores of 2.79 and 0.81 while teachers have mean and standard deviation scores of 2.82 and 0.85 respectively. With degree of freedom of 1404, the calculated z-value of 0.43 is below the critical value of 1.96. Therefore, the null hypothesis is accepted. By implication, there is no significant difference between the mean scores of principals and teachers on the extent to which inadequate facilities the effective administration of public senior secondary school in Rivers and Bayelsa State.

H_4: There is no significant difference between mean scores of principals and teachers on the extent to which inadequate funding influence the effective administration of public senior secondary school in Rivers and Bayelsa State.

Table 8: Z-test on the Mean Difference Between Principals and Teachers on the Extent to which Inadequate Funding Influence Effective Management

Variables	N	Mean	Std	Df	z-cal	z-crit.	Decision
Principals	130	2.84	0.73				
Teachers	1276	2.88	0.79	1404	0.57	1.96	Accepted

Table 8 revealed that principals have mean and standard deviation scores of 2.84 and 0.73 while teachers have mean and standard deviation scores of 2.88 and 0.8795 respectively. With degree of freedom of 1404, the calculated z-value of 0.57 is below the critical value of 1.96. Therefore, the null hypothesis is accepted. By implication, there is no significant difference between mean scores of principals and teachers on the extent to which inadequate funding influence the effective administration of public senior secondary school in Rivers and Bayelsa State.

Discussion of Findings

Lack of ICTs Provision and Effective Administration

The study revealed that lack of Information Communication Technology influenced effective administration in secondary in Rivers State, Nigeria. There is a significant difference between mean scores of principals and teachers on the extent to which ICT influence the effective administration of public senior secondary school in Rivers and Bayelsa State. This study is supported by Kwache (2007) submitted that most public secondary schools lack computer literate teachers and experts that would support and manage the application of computing in teaching process, moreso, Aktumen and Kucar (2003) asserts that, using a computer and interest connection in the classroom increases students' success.

Low Staff Morale and Effective Administration

The study revealed that low staff moral influence effective administration in secondary in Rivers State, Nigeria. There is no significant difference between mean scores of principals and teachers on the extent to which low staff moral influence the effective administration of public senior secondary school in Rivers and Bayelsa State. Low staff moral in an organization causes a separation between employers, educational managers and the school. Continuous rising of low staff moral can eventually leads to breakdown in an organization. Uche (2009), stated that condition of service of teachers, efficiency, and moral are the basic relevant thing that can affect teacher rate and can only decides their level of their commitment.

Inadequate Facilities and Effective Administration

The study revealed that inadequate facilities influenced effective administration in secondary in Rivers State, Nigeria. There is no significant difference between mean scores of principals and teachers on the extent to which inadequate facilities influence the effective administration of public senior secondary school in Rivers and Bayelsa State. Expressing the importance of facilities in the exposition of skills were Jaiyeoba and Atanda (2003) who found that educational facilities are these things which enables skilled teacher to accomplish a level of instructional effectiveness.

Lack of Funding and Effective Administration

The study revealed that lack of funding influenced effective administration in secondary in Rivers State, Nigeria. There is no significant difference between mean scores of principals and teachers on the extent to which inadequate funding influence the effective administration of public senior secondary school in Rivers and Bayelsa State. Keller (2012) asserts that inadequate funds to maintain schools and pay teachers' salaries are among the factor inhibiting the smooth administration of secondary schools.

Conclusion

Based on the findings of this study, it was concluded that lack of ICTs, low staff morale, lack of facilities and inadequate funding lead to ineffective administration of secondary schools in Rivers and Bayelsa State.

Recommendations

The following recommendations were made:

1. The Ministry of Education, State and Local government should provide basic ICT facilities such as computer, laptop, printer, flash, drive, photocopying machine among others can enhance effective administration.
2. The Ministry of Education should use systems such as recognition and delegation for professional development in order to enhance the morals of staff of secondary schools in Rivers and Bayelsa State.
3. The non-governmental organization such as Tetfund, UNESCO should step on in their support for facilities provisions.
4. The school administrators should solicitate for alternative sources of funding

REFERENCES

Abraham, N.M. (2003). Educational Administration in Nigeria, Port Harcourt: Pam Unique Lithographic Unit.

Agabi, O.G. (2004). Introduction to school management. Eagle Lithography Press Port Harcourt.

Ahmed, T.M. (2003). Education and national development in Nigeria.*Journal of Studies.*10:35-46.

Akpakwu, S.O. (2008). Essential of educational management.Makurdi, Jalim Press Limited.

Aktumen, M. &Kucar, A. (2003) 8th grade students evaluate their view on the role of computer assisted instruction in letter with statement of operations and computer-aided teaching. Gazi universities KastamonuEgitumDergisi. 11(2), 339-358.

Fadipe, J.O. (2003). Quality control in education: The teacher factor. In T.E. Ajayi& J. Fadipe (eds). *Skills improvement programme for effective performance of teachers in Nigerian schools.*A publication in National Institute for Educational Planning and Administration (NIEPA), Ondo.128-143.

Federal Republic of Nigeria (2004).*National policy on education* (4th ed.) Abuja: NERDC Press.

Jaiyeoba, A.O. &Atanda, A.I (2003).*Community participation in the provision of facilities in secondary schools in Nigeria.* Being a paper presented at the Conference of Nigeria Associaiton of Educational Administration and Planning (ANEAP). University of Ibadan, Ibadan, 29th – 31st October.

Johnson, S. (2013). Types of school administration. 2006-2013 education.com, hrc.www.education.com.

Keller, B.Y. (2012). Factors associated with high school learners' poor performance: A spotlight on mathematics and social studies. *South African Journal of Education,* 27(4), 233-242'

Nwankwo, J.I. (1987). Educational administration: theory and practice. New Delhi: Vikas Publishing house P.T. Limited.

Okeke, B.S. (2004). Quality management and national goal attainment in education. The case of Nigeria: An managerial lectures series No. 28 University Press, Port Harcourt.

Olaitain, S.O. (2007). Review of problems of school guidance in Nigeria. *Journal of Education in Developing Area*, 1, 10-11.http://www/goggle.com (Retrieved September 20,2015).

Peretomode, V.F. (2003). *Introduction to educational administration, planning and supervision.* Lagos: Jopa Press Ltd.

Uche, C.M. (2009). *Human resources management in education* in J.BBabalola&Ayeni (eds) Educational management theory Lagos. Macmillan Publishers Ltd. http://www.goggle.com (Retrieved September 20, 2015).

ORGANISATIONAL CULTURE AND MARKET ORIENTATION AS PREDICTOR OF ACADEMIC ENTREPRENEURSHIP OF PRIVATE UNIVERSITIES TEACHING STAFF IN SOUTHWEST, NIGERIA.

Fehintola Tomi Lemo
Olabisi Onabanjo University, Ago-Iwoye, Ogun state, E-mail:
tomi.akintolu@gmail.com

Prof. Subuola C. Abosede
Olabisi Onabanjo University, Ago-Iwoye, Ogun state,
abosede.subuola@oouagoiwoye.edu.ng

Dr Kenny A. Soyemi
Olabisi Onabanjo University, Ago-Iwoye, Ogun state,
k.ade.soyemi@gmail.com

ABSTRACT

This study is an investigation of Organizational culture and Market orientation as predictor of academic entrepreneurship in private universities teaching staff. The study adopted survey research design and the sample comprised one thousand, three hundred and nineteen (1,319) academic staff of private universities in Southwest selected through simple random sampling techniques. Organisational Culture Questionnaire (r=0.96), Market Orientation Scale (r= 0.92) and Academic Entrepreneurship Scale (r= 0.92) were the major instruments used for data collection in the study. Data were analysed using Multiple Regression Analysis. Results showed that Organisational culture and market orientation predicted academic entrepreneurship of teaching staff at private universities (R =.100; R2 =.010; Adj. R2 =.008; F (2, 1095) = 5.514; p.05). It also showed that there is significant relative contribution of Organisational culture (â=.038; t = 2.336; p =.020) and market orientation (â=.052; t = 2.47; p =.013) to academic entrepreneurship of teaching staff of private universities. The study concluded that there is significant combination and relative contribution Organisational culture and market orientation to academic entrepreneurship of teaching staff of private universities. The study recommended that Private universities in the Southwest should work with industries, businesses, the government, and non-governmental organisations to develop fresh, relevant, and sustainable entrepreneur curricula.

Keywords: Academic Entrepreneurship, Organizational Culture, Market Orientation, Private universities.

INTRODUCTION

In order to boost economic competitiveness, numerous governments all over the world have implemented laws aimed at facilitating and encouraging commercial exploitation of university research. This implies that all organisations, both for-profit and non-profit, can benefit from entrepreneurship because, it is a key and wellspring of creativity involving both the development of new organizational structures and business models for existing businesses. Private universities spring out of entrepreneurial mindset either by individual, group of individuals or religious and the source of funding are mainly shouldered by the owners. It is imperative to state that academic entrepreneurship will be apt to solve the financial problems facing some of these private universities.

Entrepreneurship is essential for economic growth, eradication of poverty and jobs creation (Carl and Agboola, 2012). Continuous debate and contribution of entrepreneurship have led to breakthrough of its different forms. However, all forms of entrepreneurship from sole proprietorship, corporate ventures, necessity- and opportunity-driven ventures, social entrepreneurship, academic ventures, and so forth, are interconnected within a larger framework of the identical idea, showing a shared knowledge of entrepreneurship (Mwatsika et al., 2018). *Academic entrepreneurship is a money-making endeavor which can be characterized as a taking of risks, knowledge- and smaller businesses focused on technology that stabilizes the academic institutions in which it operates. It has to do with turning academic research into a profit enterprise, thus the process by which academia markets its research developments as "products" and "sells" them at conferences in a manner akin to other commercial enterprises. Academic entrepreneurship has been related to commercialising academic activities, including teaching, research, and university-community-industry collaborations (Siegel & Wright, 2015; Adisa et al., 2023). Universities employ Academic entrepreneurship as a strategy to grow and have a beneficial effect on the economy and society (Mirani & Yusof, 2016). The* endeavours include industry-university partnerships, start-ups by academics, faculty dual appointments in businesses and academic institutions, consulting, licensing, and patent applications.

Academic entrepreneurship can occur at the level of individuals or groups acting on their own or in concert with other university system members to launch new businesses, spur innovation or renewal inside or outside of the university through science and technology parks, university-owned businesses, or research centres. Academic entrepreneurs who start their own small firms aim to use their accumulated abilities, skills, and "insider" knowledge in addition to their purely scientific experience. Through their work, they are able to transfer knowledge, information, expertise, and skills from the academic world to business or from the outside world to the local market (Riazi, 2018).

The university benefits society through disseminating information by educating students who go on to work in a variety of fields, hold conferences, consulting and considering both public and private interests, publishing research findings. Intellectual property (IP) that professors patent and license to industry a kind of knowledge transfer that is generally ignored yet has significant societal and economic ramifications to private enterprise (Styhre, 2012). Along with teaching, the research publications are also the important source of new knowledge created within the universities. These publications should be the sources of ideas for new businesses in the society. With the introduction of the third mission of universities (Etzkowitz, 2003) that requires universities to commercialized the research and knowledge created, the universities are playing active role in commercialization activities, which also contributes to the Gross Domestic Product of a nation (Siegel &Wright, 2015). Academic entrepreneurship was traditionally justified on the grounds of commercialization of academic research would be enhanced and provide an income stream for the institution. There have been questions expressed concerning the ability of academics in African universities, particularly those in Nigeria, to interact effectively and constructively with business, the community, and the government as well as to contribute pertinently to issues facing the real world. (Bogoro 2015; Sá 2014; Athreye et al.,2023). The pressure from policymakers who see the commercialization of research as a vital factor in boosting national competitiveness and shrinking university finances are the driving forces behind the academic entrepreneurial inclination (Ambos et al., 2008). Entrepreneurial behaviour among academic staff helps the institution to react to and flow with economic and environmental changes like; actions of competitors, preferences of the parents or guardians and technological advancements. Athreye (2023) assert that Nigeria has a culture of academic research, but the country's higher education sector lacks innovation and entrepreneurial skills at the individual and organizational levels, and commercialization rates are low). In order to thrive, obtain a competitive edge over rival institutions, and deliver superior performance, universities must adopt entrepreneurial behaviours and create a supportive organizational culture (Otache & Mahmood, 2015).

The creation of a new culture based on the driving forces behind the establishment of university with an entrepreneurial spirit is entrepreneurial values (Mkrtychyan, 2016). According to Aydin (2018), culture determines what is viable or unworkable, significant or unimportant, right or incorrect, and acceptable or unsuitable. Thus, the nature of organizational culture in universities could affect Academic entrepreneurship.

Organisational culture affects how people of the organisation set their own personal and professional goals, carry out their jobs, manage and administer their resources to achieve them (Huyghe and Knockaert, 2015). Organisational culture provides the fundamental ideals, convictions, and guiding principles underpinning for any organisational practices and procedures (Idiegbeyan-ose et al., 2018). The structure (organisational boundaries) must foster the administrative mechanism which concepts are assessed, picked, and put into practise (Hornsby et al., 2002).

According to Esther et al. (2018), a sort of organisational culture known as "market orientation" is one where all employees are committed to continually providing superior customer value or as a series of marketing initiatives that boost productivity. Market orientation forces a company to increase value for customers in order to create a long-lasting competitive advantage (Narver & Slater, 1990). Abidemi et al. (2018) claim that market-oriented institutions put their clients and stakeholders at the core of their operations by providing services that meet their needs and expectations in order to increase client satisfaction. Therefore, one of the key factors that promotes the growth of competitive advantage is the development of market orientation, creativity, and innovation. To compete in the global economy, entrepreneurial colleges must develop sustainable competitive advantages (Wasitowati, 2017). Market orientation has potentials to improve performance within the university system. It is also believed to give psychological and social benefits to the academia, staff/faculty members, and management in the form of greater pride and sense of belonging, as well as greater commitment to the university (Renwarin, 2017). By producing jobs, inventing or developing new products and services for an enhanced quality of life, and strengthening the economy, research-based entrepreneurial activities in Nigeria can benefit the country more. As they educate sizeable segments of the population and produce information, universities play a key role in modern civilizations. From the foregoing, the objective of the study was to use organisational culture and market orientation to predict academic entrepreneurship of private universities teaching staff in southwestern Nigeria.

The Statement of the Hypotheses

H01: There is no significant composite influence of organisational culture and market orientation on academic entrepreneurship of private universities' teaching staff in Southwest Nigeria.

H02: There is no significant relative influence of organisational culture and market orientation on academic entrepreneurship of private universities teaching staff in Southwest Nigeria.

Methodology

This study used a descriptive survey design**.** This method gives the opportunity to obtain data without manipulating any of the study's variables of interest. Thus, the researchers chose this method as it allows respondents to say exactly what they felt about variables understudy. The population consisted of the four thousand, three hundred and seventy-seven (4,377) teaching staff in Southwest of Nigeria. The sample comprised One thousand, three hundred and nineteen (1,319) academic staff members of private universities in Southwest. Simple random sampling techniques was used to select three states for this study (Lagos, Ogun, and Oyo States). Also, 50% of the private universities in each of the selected states were picked using proportionate stratified sampling techniques; Lagos (3), Ogun (6), and Oyo (3) while 60% of academic staff was used as the sample size from the selected private universities in south-west. This equal to 417 for Lagos, 626 for Ogun and 267 for Oyo which make up the total of one thousand, three hundred and nineteen (1,319) private universities academic staff.

For the purpose of information gathering, primary data which is a closed ended formal questionnaire was used for the study. The questionnaire consisted of section A which deal with demographic data while section B comprises of three (3) sub sections which are: Organisational Culture Questionnaire, Market Orientation Scale and Academic Entrepreneurship Scale. Organisational culture Questionniare (OCQ), was adapted from Donald et al (2013). It comprises 35 items. It employed a Likert scale with four possible outcomes. (Strongly Disagree, Disagree, Agree and Strongly Agree). The scale's psychometric characteristics were assessed using three consecutive steps: exploratory analysis, confirmatory analysis, and reproducibility was reported. According to their findings, the completion average was 97%, while the overall response rate was 80%. With a worldwide, 0.70 for the Cronbach's alpha coefficient, and a Goodness of Fit (GoF) criterion of 0.79, the metrological results showed outstanding external model quality. The repeatability was assessed using a test-retest procedure which showed 0.962 using Pearson Product Moment Correlation. Market Orientation Scale (MOS) was developed by Narver and Slater (1990) and Kohli and

Jaworski (1990). It is used to evaluate market orientation of teaching staff in the universities on a scale of twenty five. The questionnaire was adapted for the purpose of this study. The Market Orientation Scale employs a Likert scale with four possible responses (strongly disagree, disagree, agree, strongly agree). Comments A sample of thirty academics were given the scale to test its reliability, and the same group of participants were given the same questionnaire two weeks later. Pearson Product Moment Correlation was used to analysed the result showing a high reliability coefficient of 0.902 using test-retest reliability technique. The Academic Entrepreneurship Scale (AES) was adopted from Zahra's (1996) measure for corporate entrepreneurship, this study expanded based on the category of academic entrepreneurship aspects of enterprise within a corporation. It consists of 21 elements and its used to assess academic entrepreneurial behavior of lecturers. The academic entrepreneurship scale is based on a Likert scale (strongly disagree, disagree, agree and strongly agree). In order to verify content validity, the questionnaires were also given to other researchers for adequate review. For reliability purpose, test-retest method was adopted and the result showed 0.92 reliability coefficient.

Result

Hypothesis One: Organizational culture and market orientation do not have a significant composite influence on academic entrepreneurship of teaching staff at private universities in South-West Nigeria.

Table 1: *Multiple Regression Analysis of* Composite of *Organisational culture and Market Orientation* on Academic Entrepreneurship of Private Universities Teaching Staff

Source of variation	Sum of Squares	Df	Mean Square	F-Ratio	P
Regression	489.005	2	244.502	5.514	.004[a]
Residual	48553.520	1095	44.341		
Total	49042.525	1097			

R = .100; Multiple R = 0.010; Multiple R^2 (Adjusted) = 0.008;
Stand error estimate = 6.658

a. Predictors: (Constant), Market Orientation, Organisational Culture

b. Dependent Variable: Academic Entrepreneurship

According to Table 1 findings,organizational culture and market orientation, which were all predictor factors in the regression model, together predicted academic entrepreneurship among academic staff at private universities (R =.100; R2 =.010; Adj. R2 =.008; F (2, 1095) = 5.514; p.05). This demonstrated that the predictor variables together explained 1% of the variance in academic entrepreneurship among Academic personnel in South -West Nigerian private universities. Therefore, the results of this investigation, hypothesis one is rejected.

To determine the combined effect of organizational culture and market orientation on academic entrepreneurship of private institutions' academic staff in South-West Nigeria, a stepwise multiple regression analysis was used. The outcomes as seen in Table 2

Table 2 : Model overview of the Stepwise Multiple Re gression Analysis of Organizational Culture, Market Orientation on Academic Entrepreneurship of Private Universities Teaching Staff.

Model	R	R^2	Adj. R^2	SE	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.070[a]	.005	.004	6.67463	.005	5.449	1	1095	.020
2	.099[b]	.010	.008	6.66109	.005	5.457	1	1094	.020

a. Predictors: (Constant), Market Orientation, Organisational Culture
b. Dependent Variable: Academic Entrepreneurship

According to Table 2 findings, there was a considerable contribution to the prediction of academic entrepreneurship of private universities' academic staff in South-West, Nigeria, when market orientation was added to the regression model as the first predictor variable based on the strength of its relationship with organizational culture. (R=.070; R2 =.005; Adj R2 =.004; F (1, 1095) = 5.449; P<.05). In light of this, market orientation less than 1% of the difference in academic entrepreneurship among academic staff at private universities in South-West Nigeria. Market orientation and organizational culture were included in the regression model as additional predictor variables, and this combination significantly affected the academic entrepreneurship of academic staff at private universities in Southwest Nigeria. (R=.099, R2 =.010, Adj R2 =.008, F (1, 1094) =5.457, P<.05). As a result, it was shown that 10% of the academic entrepreneurship of academic staff at private universities in Southwest, Nigeria was due to organizational culture and market orientation combined. This proved that organizational culture could boost academic staff predictions of entrepreneurial behaviour at private universities in Southwest Nigeria by less than 1%. This suggests that organizational culture and market orientation together predict the academic entrepreneurship of private universities in Southwest, Nigeria.

Hypothesis Two: There is no significant relative influence of organizational culture and market orientation on academic entrepreneurship of private universities teaching staff in Southwest Nigeria

Table 3: Relative contribution of Market orientation and organisational culture's on Academic Entrepreneurship of Private Universities Teaching Staff in South-West

Model	Unstandardized Coefficients		Standardized Coefficient s	T	Sig.
	Beta	Std. Error	Beta		
(Constant)	61.685	2.690		22.935	.000
Market Orientation	.052	.021	.075	2.477	.013
Organisational Culture	.038	.016	.070	2.336	.020

a. Dependent Variable: Academic entrepreneurship

The findings in Table 3 demonstrated the degree to which the predictor variables caused the criterion variable. Market orientation is the most effective predictor of academic entrepreneurship in Southwest Nigeria among the academic staff of private universities (â=.052; t = 2.47; p =.013), followed by organizational culture (â=.038; t = 2.336; p =.020). This result refutes the notion that organizational culture and market orientation have no significant relative influence on the academic entrepreneurship in Southwest Nigeria of academic staff at private universities was rejected by this finding.

Discussion of findings

The result indicated that organizational and market orientation predicted academic entrepreneurship of private universities teaching staff in Southwest Nigeria. An entrepreneur with a strong focus on the market will create fresh concepts for products or services that cater to the demands of current clients. Understanding consumers' behaviour and future demands is a critical pre-requisite for a successful organization's strategic direction in a competitive environment where market-oriented organizations can profit from competition between competitors. Additionally, internal clients who are corporate employees shouldn't be ignored due to the complexity of consumer behaviour and the requirement to focus on exterior clients. Only then will the business be able to generate value for its clients while acting with an entrepreneurial mindset. This finding implies the necessity of fostering an entrepreneurial spirit with a market orientation such that new products or services are constantly needed to meet the requirements and preferences of consumers. Similar findings were reported by Faroque et al. (2021), Morgan and Anokhin (2020) and Octavia et al. (2020). Because of this, companies that combine market orientation with entrepreneurial development perform better than those that do not (Atuahene-Gima & Ko, 2001). It also supports Shehu and Mahmood's (2014) study, which discovered a solid and favourable connection between market orientation and entrepreneurial activities. Aloulou (2018) provided additional evidence to back up the conclusion that market orientation results in the ability to leverage current resources, particularly in the integration process, acquire, reconfigure, and release resources that are enabling businesses to act rapidly on new opportunities.

Additionally, market orientation promotes information regarding price, the search for high-quality products, desirable models, and well-known brands. The conclusion was further supported by Oplatka and Hemsley (2007), who were cited in Niculescu et al. (2013). They stated that applying market orientation in university settings has several advantages, including fostering a student-centered environment. They also stated that values such as competitor orientation and inter-functional coordination can aid administrators and teachers in better comprehending and structuring the educational environment.

The study also finds significant relative prediction organisational culture and market orientation on the academic entrepreneurship in Southwest Nigeria of academic staff at private universities. This supports the findings of Ireland et al. (2009), who confirmed that the robustness of cultural norms supporting entrepreneurship is positively connected with the level of support for it among organisational members. Earlier research by Ireland et al. (2003) suggested that "effective entrepreneurial culture is one in which new ideas and creativity are expected, risk taking is encouraged, failure is tolerated, learning is promoted, product, process, and administrative innovations are championed, and continuous change is viewed as a conveyor of opportunities. Additionally, past studies (Kirby, 2006; Rothaermel et al, 2007; Luke et al., 2010) highlighted how company cultures could benefit entrepreneurs. According to Todorovic et al. (2011), local cultures inside an organisation have a considerable impact on how university performance and reward schemes are perceived and implemented. Guerrero-Cano et al. (2006) assert that the development of entrepreneurial activity within universities depends heavily on the university culture.

This suggests that the academic entrepreneurship of academic staff at private universities in South-West Nigeria may have been significantly influenced by organisational culture and a market-focused approach. Market orientation, meanwhile, was found to be the strongest predictor of the two factors. Similar findings were also reported in the Montiel-Campos (2018) and Octavia et al. (2020) reports. The research by Franklin et al. (2001) also revealed that institutions that had launched numerous start-ups and those that had been less active in the field of academic entrepreneurship had quite different attitudes and behaviours. The outcome also emphasised the implementation of policies that are culturally and informationally conducive to entrepreneurship, indicating that organisational culture and market orientation have a big impact on academic entrepreneurship. The study also supports Joseph and Francis' (2015) analysis, which showed that organisational performance variations are greatly and favourably impacted by culture. It has been determined that the relationship between organisational culture and performance is moderated by a market orientation.

This finding is in line with Souitaris' (2015) research, which used a multilevel approach to assess the relative significance of individual, subunit, and organisational effects on entrepreneurial intentions in academia and to examine specific components of the subunit effect and how they interact with other levels. According to organisational culture literature, the department's adhocracy culture, which is distinguished by flexibility and an external orientation, has been demonstrated to be positively connected with academic entrepreneurs' activities.

Conclusion and Recommendations

This study focused on influence of organizational culture and market orientation on academic entrepreneurship of private universities teaching staff in Southwest, Nigeria. It was concluded that organizational culture and market orientation significantly predict academic entrepreneurship of private universities teaching staff in Southwest, Nigeria. The study recommended that Private universities in the South West should work with industries, businesses, the government, and non-governmental organizations to develop fresh, relevant, and sustainable entrepreneur curricula. Also, private universities should invest on research and development

REFERENCES

Abidemi, B. T., Halim, F., & Alshuaibi, A. I. (2018). The relationship between market orientation dimensions and performance of micro finance institutions. Journal of Marketing Management and Consumer Behaviour, 2(3), 1-14.

Adisa, T.A., Adekoya, O.D., Abdulraheem, I. and Sani, K.F. (2023) Academic Entrepreneurship: Promoting Economic and Societal Developments. In I. Abdulraheem & T. A. Adisa (Eds) Academic Entrepreneurship in Nigeria: A Book of Reading (pp. 113-140) University of Abuja Press: Nigeria

Aloulou, W. J. (2018). Studying the influences of learning orientation and firm size on entrepreneurial orientation-firm performance relationship in Saudi context. Middle East Journal of Management, 5(2), 137-160.

Atuahene-Gima, K., & Ko, A. (2001). An empirical investigation of the effect of market orientation and entrepreneurship orientation alignment on product innovation. Organization Science, 12(1), 54-74.

Aydin, B. (2018). The role of organisational culture on leadership styles. MANAS Journal of Social Studies, 7(1), 1-13

Carl, O., & Agboola, G. M. (2012). Microfinance and entrepreneurial development in Nigeria. Journal of Business and Economic Development, JORIND, 10(3), 1-11

Esther, M. N., Agu, O., & Ede, E. C. (2018). Effect of market orientation on organisational performance of the selected manufacturing firms in Enugu state, Nigeria. International Journal of Multidisciplinary Research and Development, 5(4), 33-40

Etzkowitz, H. (2003). Research groups as quasi-firms: The invention of the entrepreneurial University. Research Policy, 32, 109-121.

Faroque, A. R., Mostafiz, M. I., Faruq, M. O. & Bashar, M. F. .B. (2021), ?Revisiting entrepreneurial capabilities and export market orientation: A multi-scale investigation in an emerging economy?, International Journal of Emerging Markets, 16(3), 556-579, doi: 10.1108/ IJOEM-08-2019-0644

Guerrero-Cano, M., Kirby, D., & Urbano, D. (2006). A literature review of entrepreneurial universities: An institutional approach, Paper presented at 3rd Conference of Pre-communications to Congress. Business Economic Department. Autonomous University of Barcelona, June

Huyghe, A., & Knockaert, M. (2015). The relationship between University culture and climate and research scientists' spin-off intentions. The Journal of Technology Transfer, 2(3), 11-22. doi: 10.1007/s10961-014-9333-3

Kohli, A. K., & Jaworski, B. J. (1990). Market orientation: The construct, research propositions, and managerial implications. Journal of Marketing, 54(11), 1-18.

Kuratko, D. F., Goldsby, M. G. (2004). Corporate entrepreneurs or rogue middle managers? A framework for ethical corporate entrepreneurship. Journal of Business Ethics, 55, 13-30

Mirani, M. A., & Yusof, M. (2016). Determinants of academic entrepreneurship: An organizational level model. Journal of Global Business and Social Entrepreneurship, 2(3), 48-56

Mkrtychyan, G. A (2016). Entrepreneurial University culture: The clash of values and resistance to change. Basic Research Program Working Papers Series: WP BRP 31/EDU/2016.

Morgan, T. & Anokhin, S.A. (2020). The joint impact of entrepreneurial orientation and market orientation in new product development: studying firm and environmental contingencies. Journal of Business Research, 113, 129-138.

Mwatsika, C., Kambewa, P., & Chiwaula, L. (2018). Untangling the concept of entrepreneurship towards a common perspective. African Journal of Business Management, 12(14), 451-470.

Narver, J. C., & Slater, S. (1990). The e? ect of a market orientation on business profitability. Journal of Marketing, 54(11), 20-35.

Niculescu, M., Xu, B., Hampton, G. M., & Peterson, R.T. (2013). Market orientation and its measurement in universities. Administrative Issues journal, 3(2), 1-16.

Oplatka, I., & Hemsley-Brown, J. (2007). The incorporation of market orientation in the school culture. International Journal of Educational Management, 21(4), 292-305

Otache, I., & Mahmood, R. (2015). Corporate entrepreneurship and business performance: The role of external environment and organisational culture: A proposed framework. Mediterranean Journal of Social Sciences, 6(4), 31-37

Renwarin, J. M. J. (2017). The influence of aviation industrial environment and market orientation on competitive strategy and its effects on Aviation business performance (study on Aviation industry in Indonesia), Journal of Internet Banking and Commerce, 22(3), 11-25

Riazi, Z. (2018). Investigating the relationship between educational dimensions of entrepreneurial. Iranian journal of educational Sociology, 1(8), 16-32.

Rothaermel, F.T., Agung, S. D., & Jiang, L. (2007). University entrepreneurship: A taxonomy of the literature. Industrial and Corporate Change, 16(4), 691-791. DOI:10.1093/icc/dtm023

Shehu, A. M., & Mahmood, R. (2014). The relationship between market orientation and business performance of Nigerian SMEs: The role of organizational culture. International Journal of Business and Social Science, 5(9), 159-168.

Siegel, D. S., & Wright, M. (2015). Academic entrepreneurship: Time for a rethink? Enterprise Research Centre, ERC Research Paper No.32

Styhre, A. (2012). Transduction and entrepreneurship: A biophilosophical image of the entrepreneur. Scandinavian Journal of Management, 24(2), 103-112.

Todorovic, Z. W., McNaughton, R. B. & Guild, P. D. (2005). Making university departments more entrepreneurial. The perspective from within. Entrepreneurship and Innovation, 115-122

Wasitowati, S. M. (2017). The role of market orientation, creativity and innovation in creating competitive advantages and creative industry performance. Jurnal Dinamika Manajemen, 8(2), 152-166

Zahra, S. A. (1996). Governance, ownership and corporate entrepreneurship: The moderating impact of industry technological opportunities, Academy of Management Journal 39(6), 1713-1735.

Greekline JOURNAL OF OFFICE AND INFORMATION MANAGEMENT

ISSN: 279393X

Greekline PUBLICATIONS AND ACADEMIC JOURNALS

THE ROLES OF INFORMATION AND COMMUNICATION TECHNOLOGY AND COMMUNICATION CHANNELS IN A TYPICAL OFFICE SET-UP

Seyi DAVID & Adegboyega Alaba TIAMIYU
david.seyi@lcu.edu.ng
Department of Arts & Social Science Education
(Business Education Unit)
Faculty of Education
Lead City University, Ibadan-Nigeria

ABSTRACT

The chapter aims to provide a systematic overview of Information and Communication Systems (ICTs), their functions and the effect of ICTs on typical office set-up by clarifying the relationships among the organization structures. As a response to the need for understanding the effects of ICTs on organizational structures and business processes, the present study, which is conceptual in nature, opts for a systematic literature review. The study reviews a broad range of scientific studies that focus on the relationship between ICTs and the effects of organizational facts. Therefore, it presents novel and useful information about the effects of ICTs on general management, organizational hierarchy, and strategic business process that can be used by business information technology investors, developers, and users. It is also hoped that the present study provides research implications for researchers who aim to conduct empirical studies to investigate the impact of ICTs on business systems.

Keywords: *Information and Communication Technology, Communication Channels, Office Set-Up*

INTRODUCTION

Information and Communication Systems (ICTs) have developed at an unprecedented pace in the 21st century and influenced every aspect of our lives. To understand the changes in individuals' behaviors in the modern era, it would be helpful to examine the impact of ICTs on daily life and particularly on the consumption choices that affect business strategies, typical office set-up, cities, countries and government structures to a considerable extent.

One of the most concrete indicators of these changes would be internet penetration. To illustrate, in 1995, less than 1% of the world population had an internet connection, while this number increased tenfold from 1999 to 2013. The number of internet users first reached a billion in 2005, two billion in 2010, and three billion in 2014 (Internet Users, 2019). Moreover, the number of internet users' world-wide was around four billion in 2018 (Number of internet users worldwide from 2005 to 2019, 2019). The growth of internet users worldwide has increased more than 3 times within approximately 15 years. Hence, it could be asserted that this increasing trend will be witnessed in the future as well. According to Cisco, 52% of the world population will have internet penetration in 2020 (Cisco Visual Networking Index: Forecast and Trends, 2017–2022 White Paper, 2019). The highest population of internet users is in Asia. In 2018, China, which had the highest number of internet users, has over 802 million internet users, while India had over 500 million internet users (Internet Stats & Facts for 2019, 2019). Based on these statistics, it can be said that around 30 percent of internet users live in these two countries.

Another important indicator of individuals' behavioral change is the increase in mobile device users. Mobile devices provide easy, fast and effortless access to the internet. Also, mobile devices have become more accessible and affordable over time. Therefore, it can be argued that the number of internet and mobile device users is increasing simultaneously. The statistical data about the number of mobile devices in use confirm this observation as well. Web statistic indicators show that around 4.4 billion people are internet users, and 3.3 billion of these users are social media users (What Percentage of Internet Traffic is

Mobile in 2020?, 2019). Therefore, based on these figures, it may be deduced that an increasing number of people are actively using technologies such as augmented and virtual reality, smart wearable technologies, mobile payment and smart home in daily life and consequently, these technologies impact customers' behaviors along with their service-related demands from corporations. This observation can be supported based on two important facts related to ICTs' impact. The first one is the highly increasing number of customers who prefer to do shopping activities online. The number of online buyers has been increased from 1.32 to 2.05 billion between 2014 and 2020(Number of digital buyers worldwide from 2014 to 2021, 2019). In addition to the number of internet buyers, the number of online sellers is another important indicator to understand the influence of the online shopping revolution. According to Statistics, the number of customers worldwide purchasing goods online was 1.8 billion, and the return of retail sales was 2.8 trillion U.S dollars in 2018. Moreover, it is estimated that as the number of online customers continues to increase, the amount of online retail sales will grow up to 4.8 trillion dollars in 2021 (E-commerce worldwide Statistics & Facts, 2019). Therefore, it seems that there is a steady increase in online purchases. Besides online retail shopping, the second important indicator is customers' trust index in online shopping. Deloitte's reports on customers' trust in online shopping show that a great number of people have trust in shopping online (Deloitte, 2016; GFK, 2016, 2017).

Considering all the above-mentioned factors, it can be said that new technological trends in the world have affected life patterns, consumption habits and preferences of customers in the last decade. Thus, private and public institutions need to consider differentiation in people's daily life and consumption habits to provide better services. Moreover, these institutions could follow new technological trends and complete their digital transformation process to better meet the needs of today's customers since new technologies and the internet do not only influence people's daily lives but also the expectations of individuals regarding public and private sector activities. In other words, customers expect the fastest, easiest and most cost-effective service through digital networks. As a result, public and private organizations need to invest in information system technologies, renew their organizational structures and adapt to digital transformation. Using information systems offers various benefits for typical office set-up. These benefits would be making use of rapidly developing technologies, using resources more effectively, and addressing wider audiences.

Typical office set-up around the world is investing in information systems to benefit from and gain a corporate identity in online networks. For instance, 342.4 million businesses worldwide had registered a domain name in 2018 (100+ Internet Statistics and Facts for 2020, 2020). Thus, based on these statistics, it can be argued that a great number of public and private sector typical office set-up have made investments to gain a corporate identity in the internet networks and have their share in digital transformation. These changes may also affect the organizational structure of typical office set-up. In other words, all business processes that exist today do not entirely depend on human beings and most of these processes are realized, controlled and managed through information system technologies in digital networks (Laudon & Laudon, 2012). This way, typical office set-up can build and maintain their relations with customers, suppliers, employees and external environment elements in a digital platform. Namely, R&D activities, service delivery, product-order placement, delivery of the order to the customer, after-sales service, personnel selection workplace, recruitment of the required personnel and all establishment activities, in general, can be managed through digital networks both in public and private typical office set-up. Since information systems perform the functions of classifying, distinguishing, recording, holding the critical information within the organization and presenting this information when required, they may be considered as the most important component of typical office set-up to manage their business processes effectively.

Information and Communication Technologies and their Effects on Typical Office Set-Up

With their different functional features, ICTs support typical office set-up to make accurate decisions and ensure the control of the business processes in the 21st century. Namely, ICTs can collect detailed information about the business processes performed within the organizational units, process, and store then send the collected information to the relevant units when necessary. The development of ICTs has gained considerable momentum in the last decades (Garicano, 2010). This issue has created various questions about general patterns across these technologies, and the robust possibility of these evelopments across various types of functions and industries. Besides, many developments are supporting this view. One of these developments is the tasks performed by the information systems in a coordinated and inter-related manner. Moreover, information systems can analyze problems faced by enterprise managers and employees, visualize their causes, and propose solutions in line with alternative strategies. Also, information systems can help typical office set-up review their strategic decisions by showing the medium and long-term impact of these decisions on different solutions. Thus, the adoption of ICTs has been a matter of scholarly investigation and a great body of scientific research has been conducted to investigate the integration of institutions with ICTs and changes in business processes and organizational structure.

A substantial part of this body of research is on the organizational information systems (Pigni et al., 2010; Tsui et al., 2005). Many empirical studies focus on public and private institutions as well as non-governmental typical office set-up (NGOs). If we make a classification based on the institutional structure of the cases handled in these studies, we can conclude that some common issues are addressed in the stud-ies conducted on public and private sector typical office set-up. The first of these issues is the effect of ICTs on communication channels and processes within the typical office set-up (Laudon & Laudon, 2012; Pigni et al., 2010; Saleem et al., 2017; Tsui et al., 2005). For instance, Pigni et al. (2010) and Tsui et al. (2005) obtained findings about the positive effects of ICT integration into the business processes of institu-tions and the effectiveness of communication between departments and external stakeholders within the organization. Besides, conceptual models have been developed to account for the contribution of ICTs to institutions. Researchers have addressed this issue with a holistic approach, taking the functionality of software and hardware components, which are key elements of ICTs, into account (Garibaldo, 2002; Laudon & Laudon, 2012; Pigni et al., 2010; Tsui et al., 2005).

The first of these conceptual models shows the effects of data and communication systems on data flows and business processes in institutions where they are integrated. In this context, the basic parts of ICTs are computer and computer software. The relationship between these basic parts is also identi-fied (Laudon & Laudon, 2012). Computers and software programs are an integral part of information systems. ICTs provide storage and functional equipment while converting raw data into information. Software programs are a set of commands necessary to process and control the computer. Therefore, ICTs perform the above-mentioned tasks through a business cycle involving three main activities. These activities are input, processing, and output. Input is the process of collecting raw data from the enterprise and its surroundings. The raw data mentioned in this process may not make sense to people for they are not subject to the process and also do not have the necessary formal features (Laudon & Laudon, 2012). As a result of these three basic activities performed by the information systems, raw data obtained from and around the enterprise can be processed and rendered meaningful and usable for the users. Thus, the meaningful and usable state in which raw data are processed is called information.

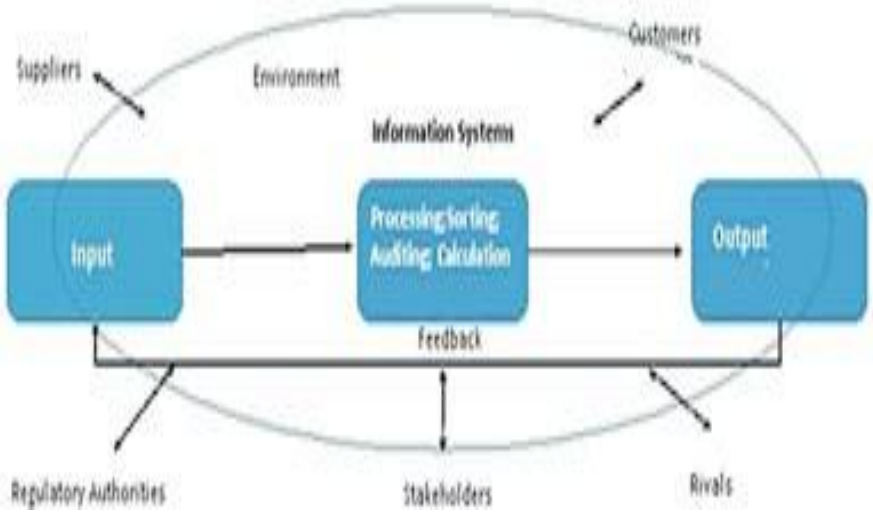


Figure 1: Information Systems Function
(Adapted from Laudon & Laudon, 2012)

As shown in Figure 1. above, information systems contain information about the typical office set-up and the environment. Environmental factors such as customers, suppliers, competitors, stakeholders, and regulatory bodies interact with both the organization and the information system. Information systems convert the raw data they gather into information by considering these interactions. In other words, information systems carry out three basic activities: input, processing, and output to transform data about the organization and the environment into the information that typical office set-up need (Laudon & Laudon, 2012). In addition, the system provides feedback to the most appropriate person in the organization for the evaluation and renewal of inputs, processing and output activities. The process of converting the raw data into information is shown in Figure1.

Pigni et al. (2010) conducted a study on the internal relations of ICT technologies in typical office set-up. This study on the impact of ICTs and inter-organization relations (IORs) on supply chain management of enterprises (SCMs) is based on the conceptual model given below. The conceptual model, shown in Figure 2, consists of different model components such as inter-organizational relationship, interroi ICT, inter-organizational collaboration dimension, proposed global approach, general theoretical model and practical implications.

Inter-Organizational Relationship: Chae et al. (2005), Welker et al. (2008), and Palmatier et al. (2007) claim that interorganizational relationship needs to be evaluated qualitatively. This evaluation is carried out based on six different dimensions. Four of these (interdependence, long-term orientation, trust and knowledge sharing) are used to measure the collaboration rating. The first dimension, interdependence, represents alternative suppliers with a degree of interdependence, profit, sales volume and dependency on availability (Palmatier et al., 2007; Walker, 2012). Also, this degree of dependency is evaluated based on the level of work dependency between the producer-distributor and distributor-retailer. The second dimension, long-term compliance, can be defined as evaluating the support of the relationship with the whole (Palmatier et al., 2007; Welker et al., 2008). This dimension is related to top management orientation /commitment (Pigni et al., 2010). The third dimension is trust, which means that each partner is evaluated with benefit and risk sharing, reliability and helpfulness (Palmatier et al., 2007; Walker, 2012).

Trust assessment encompasses scrutiny of interview notes, philanthropy, reliability of partners, and detailed pre-contractual and contract supplier evaluation. The fourth dimension is information sharing, which refers to communicating with the leader of the company about the quantity, quality and typology of the information shared in the systems (Handfield & Bechtel, 2002). Collaboration is the fifth dimension of inter-organizational relationships. Lawrence et al. (2002) define this dimension as the relationship and cooperation between institutions that depend either on a transaction or on official authority. The evaluation of cooperation activities can be carried out on an individual or collaborative basis (Pigni et al., 2010). Duration is the sixth dimension. This dimension is conceptualized through the duration of the relationship established with the firm leader (Handfield & Bechtel, 2002).

Inter-Organizational ICT Characteristics: With this dimension, systems that are used are defined and rated, referring to the business partner's and system's capacity to support supply chain activities such as stocks, storage or order management (Chae et al., 2005). There are two important subdimensions in the inter-organizational ICT characteristics. These dimensions are using pattern and supported process of supplier chain management systems.

Use Pattern and Supported Process: The use of ICTs has positive effects on cooperation between partners in the supply chain. In the conceptual basis model of Chae et al. (2005), it is suggested that the effects of ICTs on supply chain management systems are not determined in advance according to their technological capabilities. Instead, the effects of ICTs are evaluated taking the peculiarities of existing relationships between partners, which arise through interaction, into account. As a result, Chae et al. (2005) argue that it is not possible to make inferences about the characteristics of relationships between ICTs and the typical office set-up that emerge with the supply chain management system. To better understand the effects of ICTs on the supply chain management system, Chae et al. (2005) suggest that the usage and support processes need to be considered as well.
The supported supply chain process aims at strengthening processes through collaboration in various business stages (information and know-how sharing and decision or execution stages) between companies. In this context, several studies suggested that the operational and collaborative nature of intercompany processes and the nine main supply chain processes (aiming at the automation and optimization of buyer-seller interface processes) can be classified into two broad supply chain execution categories and cooperation processes (e.g., Pigni et al., 2010; Pigni & Ravarini, 2008; Rangone & Bertelè, 2004). Thesestudies included definitions and explanations regarding the features and process patterns (supply chain execution and collaboration) of current supply chain management systems.

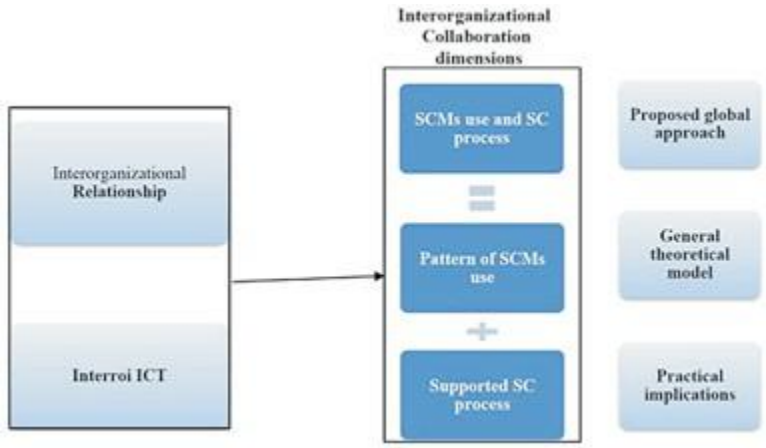


Figure 2: The conceptual model of the effects of ICR, IO ICT on SCMS (Adopted from Pigni et al., 2010)

This conceptual model presented in Figure 2 is a hybrid model developed by combining different dimensions of models proposed by Chae et al. (2005), Subramani (2004) and Pigni et al. (2010). Therefore, Pigni et al. (2010) suggest that this conceptual hybrid model can explain the effects of information communication technology systems (ICTs) and inter-organizational relationship's (IOR) on supplier chain management systems' (SCMS) usage and processes.

On the other hand, Tsui et al. (2005) conducted a study on the critical motives such as agility, asymmetry, efficiency, innovation, legitimacy, necessity, reciprocity, and stability in the use of inter-organizational information systems by typical office set-up. Tsui et al. (2005) emphasized that motivation, relational connection and behavior processes of the organization leaders' preferences and preferences related to inter-organizational system technologies are affected by changing situations since motivations that provide partnerships form the basis of these processes. Explanations regarding these motivations are presented as follows (Tsui et al., 2005):

- **The Agility Motive:** typical office set-up tend to use these systems to increase their agility and responsibilities for environmental changes (Rockartand & Short, 1991; Zaheer & Zaheer, 1997).
- **The Asymmetry Motive:** typical office set-up may need to use a system to exert power or control over other typical office set-up that are a part of the chain in their business processes (Tsui et al., 2005).
- **The Efficiency Motive:** typical office set-up may be motivated to use inter-organizational systems to increase their internal efficiency and inter-organizational efficiency (Clemons & Row, 1991; Johnston & Vitale, 1988; Konsynski & McFarlan, 1990; Malone et al., 1987).
- **The Innovation Motive:** typical office set-up might be motivated to use an inter-institutional system for innovation and creative value purposes (Bowker & Star, 2001; May & Carter, 2001; Strader et al., 1998; Thomke & Von Hippel, 2002).
- **The Legitimacy Motive:** The basis of this motivation is to increase the legitimacy and reputation of an organization to exist under current norms, beliefs, expectations of external components or the prevalence of an application in the industry (Teo et al., 2003).
- **The Necessity Motive:** Government agencies, legislation, industry or professional regulatory agencies form the general framework for the realization of business processes with legal regulations (Christiaanse & Venkatraman, 2002; Clemons & Weber, 1990). Thus, typical office set-up adopt the use of an inter-agency system to meet the regulatory or non-regulated legal requirements to perform their activities.
- **The Reciprocity Motive:** Another source of motivation for an organization to use systems is reciprocity. This motivation stems from the desire to achieve common or mutually beneficial goals or interests and to facilitate cooperation, trust-building and coordination (Ferratt et al., 1996; Holland, 1995; Kumar et al., 1998; Pouloudi, 1999).
- **The Stability Motive:** An institution may want to use inter-organizational systems to reduce environmental uncertainty and achieve stability, predictability, and reliability in its relations with others (Li & Williams, 1999).

It is generally accepted that more than one of the motives mentioned above can affect an organization's decision to adopt and use the inter-organizational information systems. These motives can help develop an effective understanding of information sharing, prevent opportunistic behavior, and increase loyalty among partners by enhancing trust among partners (Tsui et al., 2005). In addition to these benefits, under favorable conditions, it may be thought that some features may come to the fore when the eight motives mentioned above interact within an institution. Tsui et al. (2005) argue that some positive elements may arise in an institution that uses inter-organizational systems in environments where transparent cooperation is effective. These eight motives can shape asymmetry, manipulation, pressure or conflict within typical office set-up.

A conceptual model depicting these factors has been shown in Figure 3. It is understood from the conceptual model of IOS collaboration that any of the motives mentioned above can interact with motives that may arise. For example, it is suggested that the motive of reciprocity can interact with some other motives simultaneously (Tsui et al., 2005). In other words, partner organizations in communication should be able to understand and meet each other's organizational needs and expectations. Requirements to be met may include higher levels of efficiency, greater agility, increased innovation, greater stability, or greater legitimacy or reputation. Thus, cooperation between institutions that are stakeholders in business processes is more likely to increase. Moreover, the willingness of typical office set-up to do business with each other might also increase. These motives might also enable typical office set-up that have the same business purposes to be competitive. The aforementioned conceptual models emphasize that ICTs can create business value for the institutions where they are employed. To use information systems effectively and efficiently, it is vital to understand the problems ICTs are designed to solve, architectural and design elements involved and organizational processes in which such solutions are realized.

Therefore, understanding the characteristics of information systems to distinguish them from computers and computer programs, in general, is of utmost importance. Information systems cannot be designed and developed only with an architectural structure in which technical features and human factors are lacking. To better understand these systems, it is necessary to consider and evaluate the organization, management and technology dimensions and environmental characteristics of the typical office set-up together. Information systems have a multi-disciplinary structure. Today, it is possible to distinguish the disciplines of information systems as technical and behavioral sciences. It can be said that information systems have a socio-technical structure as they involve two different disciplinary structures. The socio-technical structure of information systems is shown in Figure 3 below.

Figure 3. Socio-Technical Structure of Information Systems
(Adapted from Laudon & Laudon, 2012)

As seen in Figure 3 above, information systems include technical approaches such as management science, computer science, and operations research science. It also includes human-centered behavioral approaches such as psychology, economics, and sociology. The technical approach focuses on mathemati-cal models, physical technologies and formal capacities for dealing with information systems. Therefore, it is useful to define each one separately to better understand the focal points of the different disciplines with a technical approach. There are three critical elements in computer science. The first of these is to be able to carry out transactions on the computer. The second one is the ability to transfer data over the network in an effective way. Finally, the third one, is to able to store data and access related units and individuals. On the other hand, in management science, management decisions and application models are emphasized based on the information obtained as a result of processing the data available for the organization where information systems are used. Finally, in operations research science, the focus is on the mathematical techniques necessary to optimize business process operations such as shipment, inventory control and transaction costs of products produced by the organization (Laudon & Laudon, 2012).

The behavioral approach includes the examination of human beings and the characteristics of human beings. In these areas, the use of information systems and behavioral issues that arise as a result of long-term experiences are addressed. Sociology examines the contribution of information systems for the development of typical office set-up. It also focuses on how individuals and typical office set-up are affected by information systems. Besides, psychology studies the cognition and attitudes of decision-makers towards information systems. Moreover, psychology investigates the perceptions of individuals and typical office set-up about the use of information systems. Finally, economics deals with the effects of information systems on control, cost and profit structures of typical office set-up (Laudon & Laudon, 2012).

The behavioral approach emphasizes that technical knowledge should not be ignored. To optimize the performance of typical office set-up and to maximize profitability and service quality by minimizing costs, it is necessary to have a management style that can consider both approaches. For this reason, managers of the typical office set-up should be able to comprehend and manage the socio-technical characteristics of the information systems and have sufficient knowledge to bring up solutions to the problems that may arise from both structures.

Organizational Structure Evolution in Institutions

Information system technologies have an impact on the structural characteristics of typical office set-up. When the information systems technologies are not developed and used by the typical office set-up, the bureaucratic organizational structure is regarded as an appropriate structure to maintain and complete business processes. Weber et al. (1978) argue that the behavior of employees in the bureaucratic organizational structure can be guided by the help of a program, a set of rules and traditions. He also argues that business processes can be carried out smoothly by ensuring authority-based dominance and providing a clear definition of applicable rules. However, work to be done in typical office set-up might not be clearly stated in writing. In addition, due to the effects of developing a free market economy, it might not be enough for employees to perform only to maintain the system order and complete the processes. Today, contrary to the concept of the central government, with the effect of globalization, different business divisions within typical office set-up in different regions of the world can be managed through bureaucratic systems, and business processes can be completed towards a common goal. Due to the high number of employees in the organizational structure of the bureaucratic system and the slow execution of business processes, negative work rate results may emerge. Moreover, another important problem arises when the fixed and clear rule structure and work order of the bureaucratic organizational structure are taken into consideration. typical office set-up with bureaucratic organizational structures cannot easily change and apply strategies according to changing environmental factors (Olsen, 2006).

Typical office set-up can realize reforms in cumbersome organizational structures thanks to information system technologies. typical office set-up may shrink large bureaucratic organizational structures to accommodate the pace of the digital age and reduce the number of hierarchies. Consequently, typical office set-up flatten their hierarchical structure. This way, the productivity of the employees may increase.

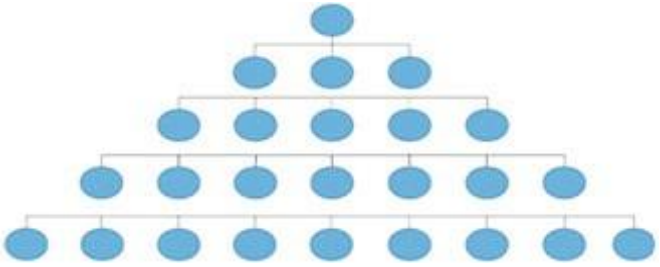


Figure 4: Effects of Information Systems on Organizational Structures (Adapted from Can et al., 2011)

Also, organizational structure can respond flexibly to changes arising from the effects of internal and external factors (Laudon & Laudon, 2012). Low-level employees can obtain the information they need to make decisions through information systems without being subject to any audit and have the right to make decisions during a business process in typical office set-up. Middle and senior managers can quickly obtain updated information about changes in internal and external factors and business processes at any time. Besides, managers can control, supervise and direct the wider audiences in lower echelons through information systems. Hence, the number of hierarchies within the organization can be reduced and typical office set-up can avoid high management costs. In post-industrial societies, authoritarianism has begun to rely on knowledge and ability rather than formal positions. As a result, the need for change in management perceptions and application models has emerged as new markets have become open systems thanks to globalization and developments in ICTs. With increased opportunities to access desired information at any time and place, professional employees tend to manage themselves. Thus, organizational management can be maintained by posing a centralization approach.

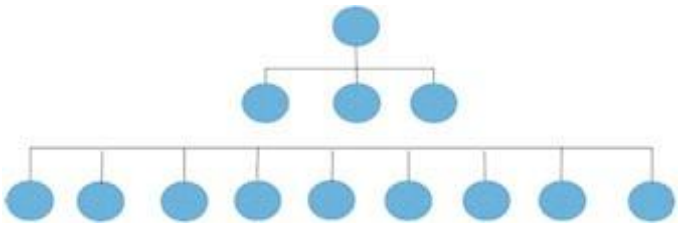


Figure 5. Flattened (Simple) Organizational Structure under the Influence of Information System Technologies (Adapted from Laudon & Laudon, 2011)

Nowadays, with the help of information system technologies, typical office set-up can carry out their activities by bringing their employees together and transferring them across different posts without opening any branches. In addition, customer needs and requests can be responded promptly. With the development of virtual communication tools such as the internet and videoconferencing and digital telephony, virtual workplaces have become more common in the digital age. Thanks to virtual workplaces, employees are provided with the opportunity to complete most of their work in their customer offices or home.

Virtual workplace applications have increased rapidly due to time and economic savings and the effects of increasing business efficiency (Afgün, 2006). Today, virtual workplaces are used in many service sectors, especially in education, health, and marketing sectors. Along with virtual workplaces, virtual organizational structures have also emerged. Here, it might useful to provide the definitions of virtual organization in the relevant literature. typical office set-up which bring together employees that are experts in their fields to put forward a business that will benefit a common purpose is called virtual organization (Can et al., 2011). As it is understood from this definition, virtual typical office set-up can combine the strengths of multiple typical office set-up to bring them together to create a common value.

Furthermore, virtual organizations are integrated with special structures within computer systems and digital networks (Mowshowitz, 1997). In other words, virtual typical office set-up is typical office set-up that use, utilize and benefit from computers, internet, and ICTs. Virtual typical office set-up are the organizational structures in which employees can work together by using ICTs without being affected by spatial and temporal differences (Wiesenfeld et al., 1999).

The organizational structure of virtual typical office set-up is shown in Figure 6. Below;

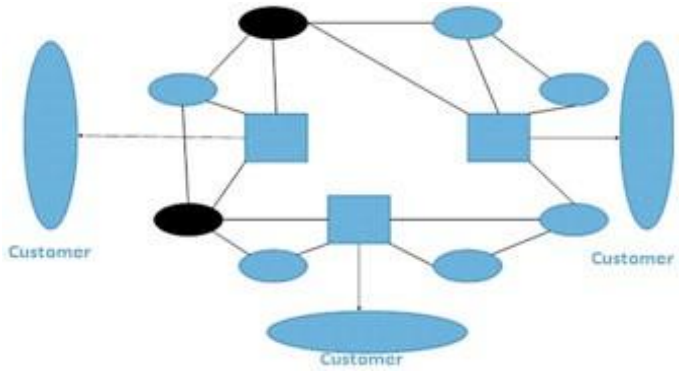


Figure 6. Virtual Organization Structure and Relations (Adapted from Pinchot, G., 1996)

As seen in Figure 6. above, different business groups are created for multiple customers at the same time in virtual typical office set-up. While ensuring this, employees and managers within the groups are not fixed. Put differently, the employees who have the expertise needed to realize a particular business project and the group manager who is to manage them are brought together for a while and may be directed to different jobs after the project is completed. An important point here is the difference in the communication processes between the business groups. In contrast to the hierarchical organizational structure, communication between individuals and groups in virtual typical office set-up is carried out voluntarily, isolated from hierarchical positions and business departments. In other words, communication and collaborations established in virtual typical office set-up are voluntary. Thus, there is no hierarchical superiority between the communication parties in this process (Lipnack & Stamps, 1994).

Economic Performance Effects of Information Systems on Institutions

In the modern world, globalization takes place quickly and effectively through ICTs. Therefore, attention has been paid to the contribution of ICTs to the development process, effectiveness, and macro-economy. Relevant literature, especially concerning the contributions of ICTs to the economy, has suggested two main findings of interest. The first of these findings is that ICTs do not have any positive effects on firms' performance and economy. Research producing findings that indicate no relationship between ICTs and firm performance and/or economy was carried out about two decades ago.

On the other hand, there is also evidence that investments in ICTs lead to an increase in firm performance and economic development. In the relevant literature there are many empirical studies with findings supporting this view (Atzeni & Carboni, 2006; Brynjolfsson & Hitt, 1995, 1996; Gargallo-Castel & Galve-Górriz, 2012; Lichtenberg, 1995; Seo et al., 2012). ICTs provide typical office set-up with three different economic values. Among the economic benefits provided by the information system technologies, it is worth mentioning the cost of capital. The concept of capital cost has emerged as a result of the applications for growth and vertical integration strategies, which are proposed as a useful model for typical office set-up, especially during the production economy periods. It is suggested that the companies will make fixed investments in production and service facilities in different countries, employ personnel with specialization and high production amount will reduce the costs (Fishburn, 1968; Peltzman, 1976; Samuelson, 1937). However, investing more may not yield returns in the same direction (Fisher et al., 1921; Hill & Jones, 1992; Milgrom & Roberts, 1990; Snow & Warren Jr, 1996). It is also possible to generate a higher income at less cost. Today, thanks to information system technologies, typical office set-up can conduct and manage their business processes in many different regions of the world without making fixed investments and employing a high number of employees. Thus, information systems are seen as a production factor that can replace the traditional capital- and labor-intensive business model (Laudon & Laudon, 2012).

On the other hand, several findings suggested that transaction and coordination costs were reduced due to ICTs (Williamson, 2007). An important benefit of information communication systems for organizations is that they help to reduce transaction costs. Transaction costs include the costs of performing many transactions, such as using new markets, communicating with remote suppliers, selecting, placing and performing quality control audits, obtaining insurance, and collecting information on products and services (Williamson, 2007). In other words, transaction costs include measuring valuable features or product performances for products or services. As used herein, the term measurement consists of physical and proprietary rights to the performance characteristics of products, services, and units. There are three main elements that transaction cost theory attaches importance to develop business models to ensure international entrepreneurship. These are firm-specific advantages, country-specific advantages, and internationalization-specific advantages, respectively. Company-specific advantages include the presence of unique assets such as patents and licenses in the company's assets, and the ability to provide transactional advantages. In addition, if the country-specific advantages include a reliable and accurate market structure, its geographical advantages may minimize potential risks, decrease transaction costs, and increase the country's free-market agreements.

Last but not least, export supports, licenses, partnership agreements, opportunities for direct foreign investors are among the specific benefits of internationalization. Considering the advantages that are assumed to reduce the transaction costs mentioned above, information systems technologies are another advantage factor since they reduce transaction costs considerably. This might be the reason that the amount of investment in information systems has become an important item in the annual budget. Making this investment cannot be seen as a luxury investment in today's competitive conditions.

Information systems can carry out many activities that can be realized through a computer without needing human beings and reduce the number of employees for typical office set-up in the manufacturing or service sector. Furthermore, information systems eliminate fixed investment expenses such as construction and machinery costs (Laudon & Laudon, 2012). Considering the economic benefits provided by the information systems in the long term when compared to their cost, it is expected that the number of typical office set-up that invest in information systems will increase in the coming years. In addition, information systems technologies increase the quality of public services while decreasing transaction costs. Thus, the use of information systems is increasing day by day in the public sector as well while many countries include the use of information systems in the scope of their science, technology, and industrial policies. One of the most concrete indicators of this situation is the investment targets included in the public investment programs of countries. For instance, in the public investment program published by the Turkish Ministry of Development for 2018, investments in information systems are projected (Kalkýnma Bakanlýðý, 2018).

Another economic benefit that the use of information systems provides is a reduction in management costs. According to the proxy theory, businesses should not be structured to target the highest amount of profit target and regulate all its relations according to this target. Instead, contemporary businesses are considered as an organization that encompasses all contractual ties between individuals who consider their interests (Jensen, 2014; Laudon & Laudon, 2012). To illustrate, typical office set-up employ managers to manage and maintain their business processes. Managers employ employees to do the work on their behalf. Owners of the typical office set-up act as a proxy for the executives to do the work on their behalf. In the same way, managers delegate employees to complete work on their behalf. Business owners supervise their designated managers to see if things are running smoothly. Managers are also required to supervise the work of employees due to their accountability to the business owners. The main reason for conducting this audit is that the proxies do not put their interests before corporate interests. The audit process needs to be carried out regularly and repeatedly. Supervising and managing the work of managers and employees becomes more costly if the typical office set-up have a large organizational structure and perform their business processes in different geographies.

Furthermore, as the organizational structure grows, it becomes difficult to carry out such audits accurately and realistically.

The organizational structures of the typical office set-up grow, proxy costs (management costs of employees) also increase. This is where information technologies benefit typical office set-up. Owners and managers can easily obtain necessary information about the business processes and employees' performance thanks to these technologies. In other words, due to information systems technologies, transaction and proxy costs of typical office set-up are reduced. Consequently, typical office set-up can complete their business processes with fewer employees more quickly and effectively.

Conclusion/Recommendations

Managers can bring employees of diverse cultures and characteristics together in their business projects and guide them towards the same goal using the information system technologies. Besides, managers can evaluate the work performed by different workgroups in terms of compliance with the business plan, detect existing deficiencies, and intervene quickly to eliminate identified deficiencies. Moreover, managers can monitor and evaluate the performance of each employee in different business projects. Customer requests and demands can also be taken into consideration during the product or service development stages of the typical office set-up and necessary information can be communicated to customers instantly about business processes. After product or service delivery, after-sales services can be provided for customers. All information flow processes within and outside the organization can be maintained with the help of information system technologies. In other words, it is possible to see ICTs in action in every stage of business processes. The links between business processes and ICTs have been included in several conceptual models that have been elaborated on in this chapter. These models are ICR, IO ICT's conceptual model, and IOS collaboration conceptual research models respectively. Firstly, the model of ICR, IO ICT's effects on SCMS have been discussed with a focus on motives that might influence inter-organizational collaboration. This conceptual hybrid model explains the effects of information communication technology systems (ICT) and inter-agency relationship (IOR) on the use and process of supplier chain management systems (SCMS).

The second conceptual model is IOS collaboration. This model addresses the motivational sources that encourage typical office set-up to use their ICTs institutionally. These motives are agility, asymmetry, efficiency, innovation, legitimacy, necessity, reciprocity, and stability, respectively. Based on the model of IOS collaboration, by using ICTs, institutions can focus their organizational structures and position them in line with a common business goal. Relational factors such as trust and loyalty, and the effects of behavioral processes such as information sharing, joint decision making, and conflict government are also included in the model. Along with these relation-ships, the impact of behavioral processes on collaboration is also emphasized. Productivity, agility, innovativeness, and institutional reputation are regarded as sub-factors in ensuring cooperation between institutions. Apart from these models, the socio-technical point of view, which states that management information systems contain behavioral and technical aspects has contributed to the literature to a great extent (Laudon & Laudon, 2012). According to the socio-technical view, different scientific branches that make up the information systems are divided into two different groups technically and behavior-ally. The technical group includes the computer, operational and management sciences. The branches of science in the behavioral group are economics, psychology, and sociology. Thanks to this view, it is possible to obtain information about different branches of science and their close relationship with each other. Besides, the socio-technical view helps identify and understand the conceptual framework that underpins the multi-faceted effects of information systems on institutions.

Furthermore, the impact of information systems on the evolutionary process of the organizational structures of institutions is another important issue dealt with in this chapter. Since the 1960s the literature on organizational structures has grown considerably.

The relevant literature suggests that there are two different organizational structures which are horizontal and vertical (bureaucratic) in nature. This issue is addressed in terms of various dimensions such as changing environmental factors (Olsen, 2006); common goals; effectiveness and efficiency in business processes; government bureaucracy; and performance. In this chapter, relevant literature has been reviewed and the effects of information systems on the organizational structures of institutions have been presented. Accordingly, the characteristics of bureaucratic and flattened (simple) organizational structures have been discussed. Also, the extent of the contribution of information systems to business processes and organizational effectiveness in both bureaucratic and receding organizational structures has been explained. Moreover, the present chapter has provided relevant information about the features of the virtual organizational structures, business and organizational structures based on studies.

Finally, the present chapter has focused on the effects of ICTs on institutions, ICTs contribution to economic development, and changes and developments in organizational structures. Some studies have suggested that ICTs offer economic benefits to institutions. On the other hand, some studies have not presented any positive findings on ICT adoption in various aspects. Specifically, from the 80s until the mid-90s, when the ICTs started to develop and become widespread, no positive relationship was found between the increase in company performance and the use of ICTs. On the other hand, studies conducted as of the mid-90s and during the 2010s have detected positive correlations between firm performance and the use of ICTs (Gargallo-Castel & Galve-Górriz, 2012; Seo et al., 2012). Considering the periods when these two strands of research revealing opposite results were conducted, we can say that the positive effects of the ICTs on the performances of the institutions have recently begun to be understood more clearly. These benefits, in turn, help typical office set-up find new markets to sell their products and / or services, increase sales, increase customer satisfaction and firm loyalty, reduce fixed and variable costs in business processes. Moreover, higher production and / or service output is available in return for less labor. Thus, it is possible to say that firm size may not accurately predict firms' competitiveness in the market these days. Nowadays, ICTs are essentially required to overcome the disadvantages that business size and management costs may bring since they help to reduce different costs such as management, business process, proxy, production unit, information acquisition, financing, transportation, and quality cost. Thus, ICTs help user typical office set-up compete with their rivals in the market.

REFERENCES

Afgün, S. (2006). *Sanal organizasyonlarda yapý, yönetim ve iletiþim*. Atatürk Üniversitesi Sosyal Bilimler Enstitüsü, Yayýnlanmýþ Yüksek Lisans Tezi.

Atzeni, G. E. & Carboni, O. A. (2006). ICT productivity and firm propensity to innovative investment: Evidence from Italian microdata. *Information Economics and Policy*, *18*(2), 139–156. doi:10.1016/j. infoecopol.2005.10.002.

Bowker, G. C. & Star, S. L. (2001). Social theoretical issues in the design of collaboratories: Customized software for community support versus large-scale infrastructure. *Coordination Theory and Collaboration Technology*, 713–738.

Brynjolfsson, E. (1993). The productivity paradox of information technology. *Communications of the ACM*, *36*(12), 66–77. doi:10.1145/163298.163309.

Brynjolfsson, E. & Hitt, L. (1995). Information technology as a factor of production: The role of differences among firms. *Economics of Innovation and New Technology*, *3*(3-4), 183-200. doi:10.1080/10438599500000002.

Brynjolfsson, E. & Hitt, L. (1996). Paradox lost? Firm-level evidence on the returns to information systems spending. *Management Science*, *42*(4), 541-558. doi:10.1287/mnsc.42.4.541.

Buckley, P. J. (1989). New theories of international business: Some unresolved issues. In *The Multinational Enterprise* (3–23). Springer. doi:10.1007/978-1-349-11026-1_1.

Can, H., Azizoðlu, Ö. A., & Aydýn, E. M. (2011). Organizasyon ve yönetim (8th ed.). Siyasal kitabevi.

Chae, B., Yen, H. R. & Sheu, C. (2005). Information technology and supply chain collaboration: Moderating effects of existing relationships between partners. *IEEE Transactions on Engineering Management*, *52*(4), 440–448. doi:10.1109/TEM.2005.856570.

Christiaanse, E. & Venkatraman, N. (2002). Beyond Sabre: An empirical test of expertise exploitation in electronic channels. *Management Information Systems Quarterly*, *26*(1), 15–38. doi:10.2307/4132339.

Cisco Visual Networking Index: Forecast and Trends, 2017–2022 White Paper. (2019). *CISCO*. https://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/white-paper-c11-741490.html

Clemons, E. K. & Row, M. C. (1991). Sustaining IT advantage: The role of structural differences. *Management Information Systems Quarterly*, *15*(3), 275–292. doi:10.2307/249639.

Clemons, E. K., & Weber, B. W. (1990). London's Big Bang: A Case Study of Information Technology, Competitive Impact, and Organizational Change1. *Journal of Management Information Systems*, *6*(4), 41–60. doi:10.1080/07421222.1990.11517871.

Holland, C. P. (1995). Cooperative supply chain management: The impact of interorganizational information systems. *The Journal of Strategic Information Systems*, *4*(2), 117–133. doi:10.1016/0963-8687(95)80020-Q

Internet Statistics and Facts for 2020. (2020). *Web Site Hosting Grating*. https://www.website-hostingrating.com/internet-statistics-facts/

Internet Stats & Facts for 2019. (2019). *Hosting Facts*. https://hostingfacts.com/internet-facts-stats/
Internet Users. (2019). https://www.internetlivestats.com/internet-users/

Jensen, J. (2014). CityLibraries Townsville as a learning organisation within a local government framework. *The Australian Library Journal*, *63*(4), 292–300. doi:10.1080/00049670.2014.966408

Johnston, H. R. & Vitale, M. R. (1988). Creating competitive advantage with interorganizational information systems. *Management Information Systems Quarterly*, *12*(2), 153–165. doi:10.2307/248839

Kalkýnma Bakanlýðý. (2018). *2018 Ýylý Yatýrým Programý*. Türkiye Cumhuriyeti Kalkýnma Bakanlýðý Gösterge ve Ýstatistikleri. http://www.kalkinma.gov.tr/Pages/KamuYatirimProgramlari.aspx

Kettinger, W. J., Grover, V., Guha, S. & Segars, A. H. (1994). Strategic information systems revisited: A study in sustainability and performance. *Management Information Systems Quarterly*, *18*(1), 31–58. doi:10.2307/249609

Konsynski, B. R. & McFarlan, F. W. (1990). Information partnerships Shared data, shared scale. *Harvard Business Review*, *68*(5), 114–120. PMID:10107083

Kumar, K., Van Dissel, H. G. & Bielli, P. (1998). The merchant of Prato-revisited: Toward a third rationality of information systems. *Management Information Systems Quarterly*, *22*(2), 199–226. doi:10.2307/249395

Laudon, K. & Laudon, J. (2012). *Management Information Systems: Managing the Digital Firms* (Vol.1–13). Pearson Education, Inc.

Lawrence, T. B., Hardy, C. & Phillips, N. (2002). Institutional effects of interorganizational collaboration: The emergence of proto-institutions. *Academy of Management Journal*, *45*(1), 281–290.

Li, F., & Williams, H. (1999). *New collaboration between firms: The role of interorganizational systems*. Academic Press.

Lichtenberg, F. R. (1995). The output contributions of computer equipment and personnel: A firm-level anal-ysis. *Economics of Innovation and New Technology*, *3*(3–4), 201–218. doi:10.1080/10438599500000003

Lipnack, J., & Stamps, J. (1994). *The age of the Network -Organizing Principles for the 21. Century*. John Wiley & Sons Inc.

Loveman, G. W. (1994). An assessment of the productivity impact of information technologies. *Information Technology and the Corporation of the 1990s*. *Research Studies (Pullman, Wash.)*, *84*, 110.

Malone, T. W., Yates, J., & Benjamin, R. I. (1987). Electronic markets and electronic hierarchies. *Communications of the ACM*, *30*(6), 484–497. doi:10.1145/214762.214766

Rangone, A., & Bertelè, U. (2004). Il B2B in Italia: Finalmente parlano i dati. *Rapporto Dell'osservatorio B2B*.

Roach, S. S. (1987). *America's technology dilemma: A profile of the information economy*. Morgan Stanley.

Rockartand, J. F., & Short, J. E. (1991). The networked organization and the management of interdependence. *The Corporation of the 1990s: Information Technology and Organizational Transformation, 189*.

Rugman, A. M. (1986). New Theories of the Multinational Enterprise: An Assessment of Internalization Theory. *Bulletin of Economic Research*, *38*(2), 101-118. doi:10.1111/j.1467-8586.1986.tb00208.x

Rugman, A. M. (1990). *Multinationals and Canada-United States Free Trade*. Univ of South Carolina Press.