Leveraging on Emerging Technologies in the Management of Secondary Education in Enugu State, Nigeria.

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ABSTRACT

The researcher adopted a survey research design. Four research questions guided the study. The population for the study was 295 principals and 295 vice principals (academic) of secondary schools in Enugu State, Nigeria. The sample consisted of all the 133 principals and 133 vice principals in three education zones (Awgu, Enugu and Nsukka) of Enugu State. The instrument for data collection was a 24- item questionnaire titled "Leveraging on Emerging Technologies in the Management of Secondary Education Questionnaire" (LETMSEQ). The questionnaire was face validated by experts in educational management and measurement and evaluation, all from the Faculty of Education, Enugu State University of Science and Technology, Agbani. The reliability of 0.87 of the instruments was obtained using Cronbach Alpha method. Results indicate that principals strongly agreed that emerging technologies can be leveraged upon to manage secondary education in Enugu State especially in record keeping, communication and financial management. Based on the findings of this study, it was recommended that the knowledge of ICT should be considered while appointing principals and that the government should endeavor to provide ICTs for use in schools.

Keywords: Leveraging, Emerging Technologies, Management, and Secondary Education.

BACKGROUND TO THE STUDY

Emerging technologies are those technologies whose development, practical application, or both are still largely unrealized such that they are figuratively emerging into prominence from a background of non-existence or obscurity. (Mosweu & Chaterera-Zambuko 2021). These are technologies that have been in existence, but not yet put to optimum use or not widespread. Also defined by the World Economic Forum in Government of Canada (2014), as a technology that:

o arises from new knowledge, or the innovative application of existing knowledge;
o leads to the rapid development of new capabilities;
o is projected to have significant systematic and long-lasting economic, social and political impacts;
o creates new opportunities for addressing global issues; and
o potentially disrupts or creates entire industries.

The National Improvement Hub (2022) states that emerging technologies as defined within the context of education are those technologies that have the potential to change the current state of affairs in education. Some examples of emerging technologies would therefore include but not limited to virtual reality, mobile learning, artificial intelligence, 5G, extended connectivity, internet of things and information and communication technologies (ICTs).

Emerging technologies have a profound impact on societies the world over and are changing the way we work, communicate and engage in social activities. Potentials of emerging technologies in education places the issue as part of a more comprehensive approach to innovation in education. Digital transformation is affecting all spheres of work, the nature of jobs, tasks as well as the way people learn and live. (Riina, Yves & Cabrera, 2020). Going further, they opined that emerging technologies in education and training can offer an opportunity to rethink and reframe success in education and training. Education systems and institutions are not averse to change, but there seems to be barriers that prevent these emerging technologies from reaching their potential in educational institutions. (Ikediugwu, Eze & Agada, (2017), Onyema (2019). Some of these issues affect productivity.

Productivity and efficiency in education when compared with other public sectors, is not encouraging. In some of these sectors, technology has been a major driver of increased productivity and efficiency. As a crucial factor in maintaining competitiveness, in a globalized economy, emerging technologies can breathe new life into the education industry. The key to productivity improvement in every sector according to Melmed (1983), has been through technological innovation, and makes a case for the application of modern information technology in schools. Emerging technologies can improve and increase the efficiency and quality of school practices.

Technologies like information and communications technologies (ICTs) have a prominent role to play in educational management as it can facilitate school management by improving the functional effectiveness of the secondary school system. Secondary education is the education received after primary education and before the tertiary education. Secondary education is perceived to be the supplier of middle level manpower. It is therefore pertinent to note that there should be proper school administration of secondary schools.

School administration involves good management of the documents and activities of the school programmes, infrastructure, staff and the students. Management as an executive function involves planning, organizing, coordinating commanding and controlling. Educational institutions are places designated for providing learning experiences to learners to impart knowledge, skills, values and attitudes. The management of education is evolving especially in recent times from the traditional method to the application of technology. Principals therefore need to leverage on emerging technologies in order to manage secondary schools more efficiently.

Digital economy is increasingly on the rise, permeating all aspects of our life. Devices and objects are also increasingly connected to the internet of things (IoT). Individuals, businesses and government are connected via a host of devices. Unfortunately, some principals have never used the internet (Mutisya & Mwania 2017), but were using ICTs in management of schools especially in communication with teachers, parents and suppliers. Eziuzo (2022) however observed that principals were inefficient in utilizing emerging technologies for managing educational processes.

Educational processes that can be managed with emerging technologies include record keeping, communication, finances and security. Record keeping is the maintenance of accurate information or transactions in writing. Record keeping in schools involves the process of maintaining accurate, complete and up-to-date documentation of student-related information. This includes

academic records, attendance records, health records, disciplinary records and other important data related to student progress and behaviour. These are official books, files and documents in which information on what goes on in the school is kept.

Records are vital to the success of the school because they enhance the achievement of organizational goals. Emerging technologies like ICTs can bring significant improvement in the efficiency of management of education. As Babalola, Akinwumi and Alegbeleye (2021), revealed that record management is a predictor of administrative effectiveness. Amie-Ogan and Sebastine (2021) in the same vein showed that the use of computer is a principal's record keeping practice for enhancing administrative effectiveness in public senior secondary schools. However, Ahmed and Jibia (2013) in exploring the trend and development of ICT, observed that given the method of record keeping in our schools, there is the need for schools to utilize the various information systems available to their own advantage. Unfortunately, this does not seem to be the case as studies (Ikediugwu, Eze &Agada 2017) have revealed the lack of requisite skills in the use of ICT by principals.

The use of ICTs in record management is essential. In a study, Kyoshabire, Bahati and Kintu (2023), revealed a significant relationship between ICT utilization and records management in secondary schools and therefore advocated the training of school administrators in basic ICTs utilization skills especially in their application in managing school records. Ochwo, Atibuni and Sekiwu (2018) found that the level of ICT adoption in students records management was moderately high. However, Ahmed and Jibia (2013) in exploring the trend and development of information and communications technology observed that given the method

of record keeping in our schools, there is the need for schools to utilize the various information systems available to their own advantage. Unfortunately, this is not the case as several studies (Ikediugwu, Eze & Agada 2017,), have revealed the lack of requisite skills in the use of ICTs by principals. Ochwo, Atibuni and Sekiwu (2018) in their study however revealed that the level of ICT adoption in students' records management was moderately high.

Communication is another critical aspect of secondary school management. Communication in schools refers to the exchange of information and ideas between individuals within a school community, including teachers, principals, parents and other stakeholders. Effective communication is critical for the success of the school, leveraging technology and other tools can facilitate communication. Some principals are already using technology in school management (Mutisya & Mwania 2017), especially in communication with teachers, parents and suppliers. Communication between the school and the parents is essential as it builds relationship that foster parental involvement.

Financial management in schools refers to the process of planning, organizing, controlling and monitoring the financial resources of a school to support its educational mission. ICTs facilitate management of finances, (Kirmani, Wani and Saif 2015) especially in enhancing budgeting. (Muema 2017). On the role of the school administrator in integrating ICTs in financial management, Nyang'au (2017) showed that the school administrator plays a key role but regrettably unavailability and inappropriate ICT infrastructure are hinderances in this regard. ICTs can also play a role in security management.

Provision of high-quality education for all learners, teachers and other school users to

receive education in a safe and secure environment is one of the fundamental objectives of the Federal Government of Nigeria (FME 2021). School security involves procedures or measures followed to keep people and school facilities safe or free from threats and attacks. School security seems to be on the front burner as recent attacks and abduction of school children in on the rise.

Statement of the problem

Productivity and efficiency in education when compared with other public sectors does not seem encouraging. In some of these sectors, technology has been a major driver of increased productivity and efficiency. This study therefore intends to ascertain if principals can leverage on emerging technologies in order to manage secondary education more efficiently.

Purpose of the Study

The main purpose of this study was to ascertain whether principals can leverage on emerging technologies in the management of secondary education in Enugu State, Nigeria. Specifically, to ascertain:

1. Whether principals can leverage on emerging technologies in the management of school records in secondary schools in Enugu State.
2. Whether principals can leverage on emerging technologies in the management of communication in secondary schools in Enugu State.
3. Whether principals can leverage on emerging technologies to manage finances in secondary schools in Enugu State.
4. If principals can leverage on emerging technologies to manage security in secondary schools in Enugu State.

Research Questions

The study was undertaken to provide answers to the following questions:

1. Can emerging technologies be leveraged upon by principals in the management of school records in secondary schools in Enugu State?
2. Can principals leverage on emerging technologies in the management of communication in secondary schools in Enugu State?
3. Can principals leverage upon emerging technologies in the management of finance in secondary schools in Enugu State?
4. Can principals leverage on emerging technologies in the management of security in secondary schools in Enugu State?

Research Method

Descriptive survey research design was adopted for the study. The population was 295 principals and 295 vice-principals (academic) of secondary schools in Enugu State. A sample of 133 principals and 133 vice-principals (academic) in three educational zones of the state was taken. (Awgu, Enugu and Nsukka). A researchers developed 24-item questionnaire titled "Leveraging on Emerging Technologies I the Management of Secondary Education Questionnaire" (LETMSEQ) was used to collect relevant data. The questionnaire was face validated by experts in educational management and measurement and evaluation unit all from Enugu State University of Science and Technology, Enugu. Reliability of 0.87 of the instrument was obtained using Cronbach Alpha method. The four research questions were answered using mean with standard deviation.

Data Analysis
Table 1: Mean and Standard Deviation of respondents on leveraging on emerging technologies in managing school records

S/N	Emerging technologies can be leveraged upon in record keeping on	X	SD	Dec	X	SD	Dec
1	Students' admission	2.56	0.71	SA	2.60	0.78	SA
2	Students' registration	2.94	0.91	SA	3.00	1.07	SA
3	Teachers' records	2.71	1.02	SA	3.01	0.98	SA
4	Students' results	1.94	0.98	D	2.14	0.93	D
5	Managing examination records	2,51	0.80	A	2,70	0.91	A
6	Students' medical records	2.55	0.87	A	2.74	0.90	A
7	Library records	3.0	0.76	A	2.96	0.80	A
8	Managing Physical Facilities	1.86	0.35	D	2.04	0.19	D
	Grand Mean	2.51	0.80	A	2.65	0.82	A

Table 1 revealed that 6 items depict that both the principals and vice principals agree that emerging technologies can be leveraged upon in the management of school records, only items 4 and 5 were below the benchmark. The grand mean however was 2.51 for principals and 2.65 for the vice principals.

Table 2: Mean and Standard Deviation of respondents on leveraging on emerging technologies in managing communication

S/N	Emerging technologies can be leveraged upon in communicating with	X	SD	Dec	X	SD	Dec
9	Students	1.76	0.81	D	1.91	0.94	D
10	Teachers	3.01	0.94	A	2.92	0.82	A
11	Parents	3.31	0.91	A	3.41	1.32	A
12	Education authority	3.41	1.64	A	2.54	0.94	A
13	Information dissemination concerning the school	3.0	0.94	A	3.14	0.88	A
14	Receiving feedback on school administration	3.41	1.07	A	3.24	0.94	A
	Grand Mean	2.98	1.05	A	2.86	0.97	A

Table 2 showed that all the items had means above the benchmark except item 9 with 1.76 which is below the benchmark. That indicates that principals and vice principals agreed that emerging technologies can be leveraged upon in all the items except item 9.

Table 3: Mean and Standard Deviation of respondents on leveraging on emerging technologies in financial management

S/N	Emerging technologies can be leveraged upon in	X	SD	Dec	X	SD	Dec
15	Managing school budget	1.09	0.81	D	1.06	0.66	D
16	School fees collection	3.71	1.21	A	3.51	1.21	A
17	Preparing staff payroll	3.41	1.02	A	3.21	1.00	A
18	Managing financial documents	2.90	0.91	A	2.77	0.81	A
	Grand Mean	2.78	0.99	A	2.64	0.92	A

Table 3 revealed that all the items had means above the 2.5 benchmark except item 15 with a mean of 1.09. This means that the principals and vice principals agreed that emerging technologies can be leveraged upon in the management of these items with the exception of item 15.

Table 4: Mean and Standard Deviation of respondents on leveraging on emerging technologies in security management

S/N	Emerging technologies can be leveraged upon in	X	SD	Dec	X	SD	Dec
19	Preventing unauthorized access to school building	3,71	1.21	A	3.51	1.21	A
20	Monitoring school compound	2.81	0.84	A	2.94	0.76	A
21	Alert systems to warn students in event of emergency	2.72	1.03	A	2.96	0.80	A
22	Use of alarm to alert staff in emergency situations	3.22	0.96	A	2.78	0.57	A
23	Training students on how to respond in emergencies	3.00	0.76	A	2.96	0.80	A
24	Training staff on how to respond in emergency situations	2.85	0.84	A	3.56	0.57	A
	Grand Mean	3.05	0.94	A	3.12	0.79	A

Table 4 shows that emerging technologies can be leveraged upon in the management of all the items as agreed upon by both the principals and the vice principals as their means were above the 2.5 benchmark.

Discussion of findings

Results from table 1 revealed that the principals and the vice principals agreed that emerging technologies can be leveraged upon in record keeping for the management of secondary education in Enugu State,

Nigeria. This is in line with studies by Ochwo, Atibuni and Sekiwu (2018) and Amie-Ogan and Sebastine (2021). This is not surprising because when records are kept with emerging technologies, they are well protected and their retrieval is much easier.

Results from table 2 shows that both the principals and the vice principals agree that emerging technologies can be leveraged upon in communication in secondary schools in Enugu State. This result tallies with that of Mutsya and Mwania (2017). Communication is a vital part in the management of secondary education. Information has to flow in different directions so as to coordinate activities efficiently in schools. Good and effective communications in schools also reduces conflict.

Results from table 3 show that emerging technologies can be leveraged upon in financial management in secondary education. This is in line with studies by Muema (2017). Financial management is a very critical area in secondary education management as money determines what projects or programmes can be carried out. Money not managed and accounted for properly can bring the principal at loggerheads with the authorities, earn him a querry or worse still a dismissal from service. With emerging technologies money can easily be collected, tracked and also disbursed prudently.

Results from table 4 revealed that both the principals and vice principals agreed that emerging technologies can be leveraged upon in security management in secondary education. This result varies with that of Onuorah, Eziamaka and Ofojebe **(2020).** Emerging technologies can be strategically employed in the security management of schools. Emerging technologies use in security management in secondary education management reduces many students as well as staff to the exposure of immediate danger as the danger could be detected quite early before it can cause much harm. Agbonkpolor, Otoibhi and Uruneden (2020) emphasized the importance of using technology to manage security and state emphatically that security control of schools will be difficult without the use of technology devices.

The use of emerging technologies in the management of secondary education in Enugu State is imperative as many processes are now handled with technology and schools in the state cannot afford to be left behind. The added value and transformative power of these technologies cannot be overemphasized.

Conclusion
Emerging technologies improve and increase the efficiency and quality of school practices. Principals have to harness them to improve productivity and improve functional effectiveness as digital transformation is affecting all spheres of work. Potentials of emerging technologies in education places them as part of a more comprehensive approach to management of education.

Recommendations
Based on the findings of this study, the following recommendations are made:
1. Emerging technologies should be made available to schools to manage education processes so that principals can leverage on them to manage secondary education in Enugu State, Nigeria.
2. Computer literacy should be one of the criteria for appointing teachers into the principalship position, this will make the principal more conversant with their use in the management of education processes.
3. For principals to leverage on emerging technologies in the management of

secondary schools in Enugu State, these technologies need not only to be provided, also the necessary electricity to power them should be available.

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