



PUBLIC AND PRIVATE SECONDARY SCHOOLS ADMINISTRATORS' EFFICIENCY TOWARDS UTILIZATION OF EMERGING TECHNOLOGIES FOR MANAGING EDUCATIONAL PROCESSES IN ANAMBRA STATE

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ABSTRACT

The inability and deficiency of many public and private secondary schools' administrators to efficiently utilize most of these emerging computer technologies in the educational processes, making it difficult for them to effectively manage these processes, has led to conducting the present study. The present study therefore, is a comparative analysis of public and private secondary school administrators' efficiency towards utilization of emerging technologies for managing educational processes in Anambra State. Three research questions guided the study. The study adopted the descriptive survey research design. Population of the study constituted 776 secondary school administrators which comprised 259 public and 517 private school administrators from 259 public and 517 private secondary schools respectively located within the six education zones in Anambra State. Sample of the study comprised a total size of 389 administrators comprising 130 public and 259 private secondary school administrators from 389 public and private secondary schools, drawn at 50% (percent) using stratified random sampling technique. A 25-item researcher's self-developed questionnaire structured on a 4-point scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) and titled: "Administrators' Efficiency Towards Utilization of Emerging Technologies for Managing Educational Processes Questionnaire (AETUETMEPQ)" was the main instrument for data collection. The research instrument was validated by three experts in the Department of Educational Management and Policy, and Department of Educational Foundations (Measurement & Evaluation expert), Faculty of Education, Nnamdi Azikiwe University, Awka, Anambra State. Reliability of the questionnaire was established through a pilot-test conducted on a sample of 15 public and 20 private secondary schools administrators selected from 15 public and 20 private secondary schools in Enugu State, which was not part of the study. The scores obtained were computed using the Cronbach Alpha method which gave internal consistency reliability values of 0.82, 0.88 and 0.81 for each of the three clusters and added up to yield an overall reliability value of 0.84, showcasing that the questionnaire was reliable and trustworthy for conducting the study. Data collated were analyzed using mean scores and standard deviation. The findings of the study revealed among others that although many of the administrators in both public and private schools were inefficient in utilizing emerging technologies, the private secondary school administrators were efficient towards the utilization of most of the emerging hardware technologies for managing educational processes in Anambra State more than the public secondary school administrators. From the findings, recommendations were proffered and among such included that both the public and private secondary school administrators should regularly undergo continuous ICT training and retraining programmes in order to boost their efficiency towards utilizing emerging technologies required for school administration.

Keywords: Public, Private, Secondary Schools, Administrators, Efficiency, Utilization, Emerging Technologies, Educational Processes



Introduction

School administrators, whether those in the public or private secondary schools are the heads of administration in the school. All the day-to-day running of the school activities are highly dependent on them. The school administrator organizes and coordinates all academic or curricular and extra-curricular activities of the school. According to Sokanu (2021) and the Wallace Foundations (2021), school administrators are professionals employed to oversee the day-to-day functions in universities, polytechnics and colleges, secondary schools, elementary/primary schools, preschools, and daycare centres. They manage routine activities, lay out future visions, and provide instructional leadership. They also have distinct personalities. They tend to be enterprising individuals, which means they are experienced, adventurous, ambitious, assertive, extroverted, energetic, enthusiastic, confident and optimistic. They are dominant, persuasive and motivational. Some of them are also artistic, meaning they are creative, intuitive, sensitive, articulate, and expressive individuals (Sokanu, 2021). The school administrators' responsibilities include directing school programmes, hiring and supervising staff members, managing budgets, and making decisions that affect the academic community. They are also in charge of developing a direction and mission for the facility at which they work. School administrators are responsible for shaping a vision of academic success for all students, creating a climate hospitable to education, cultivating leadership in others, managing people, data and processes, and improving school leadership (Wallace Foundations, 2021). Other responsibilities of the school administrators includes handling relations with parents, students, employers, and the community; managing budgets and ensuring financial systems are followed; overseeing record-keeping; managing student services such as guidance programmes; training, supervising, and motivating faculty including teachers and auxiliary staff; working on committees including academic boards, governing

bodies and task groups; assisting with recruitment, public or alumni relations and marketing activities; providing administrative support to an academic team of lecturers, tutors or teachers; drafting and interpreting regulations and dealing with queries and complaints procedures; maintaining high levels of quality assurance, including course evaluation and course approval procedures; contributing to policy and planning; purchasing goods and equipment, as required and processing invoices; liaising with partner institutions, other institutions, external agencies, government departments and prospective students; and organizing and facilitating a variety of educational or social activities (Sokanu, 2021; Wallace Foundations, 2021). The administrator is saddled with the responsibility of coordinating the entire educational processes in the school.

The school administrators perform all the afore-mentioned duties and roles for efficient and effective management of the educational processes for educational goal(s) achievement which has equally been outlined by the Federal Republic of Nigeria (FRN, 2013) in the National Policy on Education (NPE) as: provide opportunities for education of a higher level irrespective of one's gender, social status, religious or ethnic background; offer diversified curriculum to cater for the differences in talents, dispositions, opportunities and future roles; provide trained manpower in the applied sciences, technology and commerce at sub-professional grades; provide entrepreneurial, technical and vocational specific skills for self-reliance, and for agricultural, industrial, commercial and economic development; among others (p.17). The educational process as described by the National University of Life and Environmental Sciences of Ukraine (NULESU, 2021) is a structured system of organizational and didactic measures aimed at performing requirements of a definite educational level according to the state standards of the secondary education. It is aimed at bringing up an educated, well-balanced personality capable of lifelong learning, employability and fast adaptation in the society. The features of educational processes of secondary education



incorporates the following: classroom activities and teaching- learning instructions, curriculum, content of education, supervision and evaluation of instructions, practical training, examinations and tests, academic hours, content module, staff training, among others (Enueme, 2014; NULESU, 2021). All these can be group as assessment, facilitation, and curriculum. To efficiently manage the educational processes and school task in order to achieve secondary education goals and objectives especially in this technological era, there is the need to deploy technological tools. Showcasing the need for and importance of the emerging technologies in schools, the Education Foundation (2014) attested that there happens to be a paradigm shift in the use of technology in education. Technology is changing the world around us and changing education. School administrators and teachers are using it to make teaching and learning more creative, more innovative and more engaging and enjoyable. Above all, the new technology has the power to increase students' academic attainment and increase their future opportunities, whatever path they choose to go down. Emerging technologies therefore, must be more strategically linked to achievement and learning in all schools and learning organizations. And knowledge of how to achieve this needs to be shared more widely for all administrators, teachers and learners to benefit. High-quality teaching and learning have a direct correlation to high-quality outcomes and technology needs to be utilized to support students to develop deep subject knowledge and understanding. School administrators however, need to be assisted to focus on educational processes for positive outcomes utilizing various emerging technologies (Education Foundation, 2014). In a similar vein, Todowede (2019) opined that the adoption of emerging technology has introduced new instructional techniques that have been found to provide a different modality of instruments that are applicable in the Nigerian educational system. It is therefore, expected that modern technology applications will generally facilitate the achievement of qualitative

improvements in the Nigerian educational system, thereby also enhancing quality assurance in educational delivery and achieving better overall education for students. It is further projected that a technology-savvy workforce will also engender emerging technology growth in Nigeria, including likely improvements in businesses and communications as well as the development of skilled emerging technology professionals who are sufficiently-equipped to successfully manage technological problems both within Nigeria and internationally (Todowede, 2019).

Emerging Technologies (ETs) as defined by Day and Schoemaker (2000), Neira, Salinas and Crosetti (2017) and Veletsianos (2010) refers to those resources, artifacts, tools, concepts and innovations associated with digital, that have a disruptive potential to transform or generate changes in the processes where they are used, regardless of whether these are new or old technologies. This definition according to Neira, Salinas and Crosetti (2010) comprehensively applies to any field, for example, in education, ETs are expected to transform or generate changes in different educational processes. In line with the above definition, ETs are tools, concepts, innovations and advances used in various educational contexts, with various teaching purposes. For example, CALL (computer assisted language learning), affective computing, learning analytics are tools and innovations used by teachers to transform their educational practice (Veletsianos, 2010). Besides, technology can be defined as "a collection of systems designed to perform some functions", at a certain time and place, meaning that it constructs and adapts artifacts or tools in order to facilitate the daily life of human beings. A technology can be old in a place and newly introduced in another place which makes it emerging (Neira, Salinas & Crosetti, 2017). Day and Schoemaker (2000), Neira, Salinas and Crosetti (2017) and Veletsianos (2010) stated that ETs should produce a radical change in the learning processes. They also pointed out that not every new technology is



necessarily emerging technology; for instance, there are "old" technologies that may be emerging in some contexts, they are disruptive technologies, which are adopted in the future and have a certain degree of uncertainty and ambiguity.

Emerging technologies therefore, have some essential characteristics which includes that they are contextual, adaptable, evolving, ubiquitous, disruptive, innovative, complementary and generate a degree of uncertainty: they can be complex, accessible, functional, easy to use and interactive to achieve changes in the classroom; and regardless of the ETs, these should generate: motivation; Reflection; Interaction; Autonomy; Feedback; and Improvement of competencies in the educational context (Neira, Salinas & Crosetti, 2017). Given all the above explanations, since the use of technologies in the Nigerian education school system can be seen as a new phenomenon which has started gaining grounds and popularity, emerging technologies as described within the context of this present study incorporates all the hardware, software and Internet technologies being utilized in the educational process for actualization of educational goals and objectives. School administrators' efficiency in utilization of emerging technologies stand to benefit the students, teachers and the school. They help school administrators to attain a high level of sustainability. Others include that emerging technologies strengthens and boosts collaborations which supports administrators to improve their administrative responsibilities and instructional roles in the school. In the studies of Garcia, Abrego and Jauregui (2019), Makewa, Meremo, Role and Role (2013), Ritchie and Rodriguez (1996), Saiti and Prokopiadou (2009), Tan (2016) and Visscher (1996), they indicated that technology utilization can be useful to improve and make significant impacts on the educational process. According to the aforementioned scholars, the use of technology supports the abilities of administrators to plan, to produce projects, to decide, and it also speeds up bureaucratic processes. Principals who are

technology leaders comprehend that when properly used in schools, technology will enhance teaching and learning in the classroom. These kinds of principals can provide the added support and direction teachers are looking for. They use technologies to supervise teachers works as well (Garcia, Abrego & Jauregui, 2019).

Computer technologies will assist school managers in finding creative solutions for complex allocation problems (e.g., teacher allocation, timetable construction) and supporting them in monitoring carefully how the school operates. School information systems (SISs) can provide managers with the information required for informed planning, policy-making, and evaluation; in addition, SISs can assist in improving the efficiency and effectiveness of schools. This also occurs in the form of school office automation: electronic mail, electronic archives, spreadsheets, electronic appointment books, automatic dialing, and desk-top publishing. This special issue deals with the design, implementation, and evaluation of computer-assisted information systems for educational organizations (Visscher, 1996). Technologies can be utilized also by school administrators in preparing, administering, compiling and analyzing students' test marks. Technologies can be utilized in managing personnel administration, students' administration, financial administration, general administration and supervision and instructions in school (Makewa, Meremo, Role & Role, 2013). Saiti and Prokopiadou (2009) also indicated that emerging technologies can assist school administrators in the efficient management of official functions, in the enhanced supervision of student progress, as well as in the improvement of school resources management. They contribute to an easier and friendlier management of complicated and multilevel administrative transactions, and promote communication between school units, parents, and principal administration, and therefore cultivates responsibility on the part of school management, transparency in administrative actions, as well as



the interlinking of school networks. Hence, the modernization of school administration may be considered as the key for the extensive transformation and the overall reorganization of services in education. Present-day technology provides for upgraded tools for e-Services that facilitate administrative transactions and ensure efficient sharing of information between members of the school community. To be more specific, ICT provides the means for administrative transactions to be accomplished with electronic management tools, in a digital environment, which is composed of decentralized, yet interlinked, web-based services. Examples of most of these emerging technologies which are highly supposed to be utilized by school administrators in managing the educational processes in secondary schools includes the use of new hardware technologies such as smart television and smart phones, DVD, radio; software technologies through the use of such software applications as the latest Microsoft office like new versions of the word processor, excel or spreadsheet, PowerPoint, graphic design, 3D animations, virtual realities; and internet technologies using wired and wireless networks to connect to different websites such as Yahoo, Google for activities cloud computing and others, social media through Facebook, Twitter, Instagram, teleconferencing, videoconferencing, zoom, Skype, WhatsApp, online group chats, among many others.

Neira, Salinas and Crosetti (2017) citing instances of some of these emerging technologies grouped them into three categories of: software (that is, computer programs), hardware devices and combination of both (software & hardware). Within the software category, this includes software like the Web 2.0 technologies (blogs, podcasts, social networks, wikis, among others), programs that offer a direct or indirect real-world view to users such as (virtual worlds, Virtual reality, etc.), application programs such as (mobile applications, java script, html, etc.), educational platforms (LMS as Moodle), Games such as (Games on Facebook, etc.), programs that offer

educational resources (tutorials, open resources) and software that uses 3D technology (3D animations). Neira, Salinas and Crosetti (2017) also found out that these computer software programs are been utilized in various ways by people. For instance, within the Web 2.0 technologies are used to generate content in various formats: texts shared through google docs; Images as photojournal; audio through podcasts; video and shares via YouTube; multimedia like the construction of wikis in a collaborative way and finally, blogs to generate and transmit knowledge on behalf of students or teachers. Social networks such as Skype, chats, forums, text messages, among others, allow communication between participants of the learning process. Virtual world programs such as second life, virtual laboratories, the simulators, and virtual reality technology allows a direct or indirect view of the real world. The immersion environments use immersion technology to improve educational processes (Neira, Salinas & Crosetti, 2017). In the hardware aspect, Neira, Salinas and Crosetti (2017) indicated that they include all mobile devices such as (smartphones, tablets, laptops); devices that use 3D technology such as 3D printers and other devices such as blackboards, scanners, photocopiers and multi-touch tables. In the combination of software and hardware, involves the use of programs and devices that use 3D technology. In the other aspect, there are technologies that refer to innovations to improve learning and teaching processes, for example CALL (computer assisted language learning); Affective computing in learning; Learning analytics among other innovations. In the light of all the foregoing discussions, it becomes imperative that school administrators are efficient in utilizing many of these emerging technologies in the education process. Efficiency as described within the confines of this present study refers to the extent to which something or someone is proficient or competent and also skilled enough to accomplish task for achievement of motive or set educational goals and objectives. Efficiency can



be defined as doing things rightly to improve the quality of work, task or an educational process (Johnes, Portela & Thanassoulis, 2017). Thus, in the context of education, efficient use of resources occurs when the observed outputs from education (such as test results or value added) are produced at the lowest level of resource; effective use of resources ensures that the mix of outcomes from education desired by society are achieved (Johnes, Portela & Thanassoulis, 2017). However, public and private school administrators must apply efficiency in utilizing various emerging technologies so as to effectively administer their schools. Studies on technology and efficiency like those of Yu and Darrington (2006) supports technology integration into schools and believe this process to be started with the school administrators showcasing their efficiency in utilizing these technologies. But overtime school administrators' technology efficiency has become matter of deliberations for researchers in different studies.

Makewa, Meremo, Role and Role (2013) observed in their studies that school administrators' efficiency of computer utilization in education is comparatively low with respect to the diverse facilities provided by modern computers. The reason is that there are no, as a rule, integral emerging computer-based technologies. That is why, it is so urgent to conduct this study on emerging technological approach considering not only the teaching-learning aspects but, especially, to the entire educational processes and general school administration at the secondary school level of education. It is therefore, imperative and essential that school administrators possess the necessary skills for their efficiency in utilization of the emerging technologies. Nevertheless, there might be similarities or differences between public and private secondary school administrators' efficiency in utilization of technology. For most studies like those of Ali, Ashraf and Yasmin (2020) and others indicated that although the public secondary schools are best resourced when

it comes to facility provision but the private secondary schools seem to be well-managed with better job effectiveness and provide best services than the public secondary schools. In contrast, Iqbal (2012) cited in Ali, Ashraf and Yasmin (2020) revealed that public schools have provided best physical facilities to their students and teachers as compared to private schools and public-school staff had good leadership qualities and management abilities than private schools. However, the question there to answer is that could this situation be the same or different when it comes to the efficiency of utilization of emerging technologies by the public and private secondary school administrators for managing educational processes in both systems? This is what the present study sought to investigate and find out. In this regards, the present study sought to compare public and private secondary school administrators' efficiency in utilizing emerging technologies for managing educational processes. Several empirical studies of Ali, Ashraf and Yasmin (2020), Ikediugwu and Anyanwu (2019), Ogunshola (2019), Ojo and Oluwalola (2019), Olaleye (2010), Mohammed (2006), Nwosu (2003), Oyier, Odundo, Ganira and Wangui (2015), and Wanjala (2013) were conducted on public and private secondary schools' utilization of technologies on school administration. All the above studies with their own mix and findings have been carried out to compare a variety of indicators regarding ICT in public and private schools. Due to increasing importance of emerging technology in every field of life, especially in education sector, there is a great need to make a comparison of public and private secondary school administrators' efficiency towards utilization of emerging technologies for managing educational processes. It is upon this background that the present study sought to conduct a comparative analysis on public and private secondary school administrators' efficiency towards utilization of emerging technologies for managing educational processes in Anambra State.



Statement of the Problem

Utilization of emerging technologies in various educational institutions is quite encouraging and beneficial to school management and administration. In most literatures, utilization of emerging technologies such as the hardware devices, software and internet technologies is quite significant in the educational processes. It has therefore, been showcased in studies that technologies seem to have a lot of benefits and significance in promoting the effectiveness and improving the quality of all educational processes in both the public and private schools. To achieve this process in Anambra State also warrants that both public and private secondary school administrators become highly competent, proficient and efficient in utilization of these emerging technologies for managing all the educational processes. Despite the wide range of opportunities brought in by the advent of the information and communication technology (ICT) coupled with the emerging technologies in most secondary schools, it seems there still exist in secondary schools in Anambra State lot of administrative inadequacies and inefficiency in the educational processes. Preliminary examinations and observations from most of the public and private secondary schools and Anambra State inclusive showcase that many school administrators still rely on the old/traditional administrative practices where manual documentation, use of pen and paper, among others is still the order of the day. Many of the public and private school administrators are still reluctant and not familiar to the constant use of most of the emerging technologies in administering their schools. This situation which seems to be worrisome with its negative consequences on the administration and management of the educational processes raises doubt on school administrators' efficiency in utilization of emerging technologies, especially in this 21st century technology era. The inability and inadequacy of most of the public and private secondary school administrators to efficiently and

effectively utilize some of these emerging technologies which seems to have negatively affected all educational processes and administrative practices have created a gap which must be filled by the present study; therefore, demanding the need for a comparison between public and private secondary school administrators' efficiency towards utilization of emerging technologies for managing educational processes in Anambra State. This has equally become the problem of this study.

Research Questions

The following three research questions guided the study:

1. How efficient are the public and private secondary school administrators towards utilization of emerging hardware technologies for managing educational processes in Anambra State?
2. How efficient are the public and private secondary school administrators towards utilization of emerging software technologies for managing educational processes in Anambra State?
3. How efficient are the public and private secondary school administrators towards utilization of emerging Internet technologies for managing educational processes in Anambra State?

Research Method

The study adopted the descriptive survey research design. This design was employed in order to collect data (information) from a sample of public and private secondary school administrators in Anambra State as regards to comparing their efficiency towards utilization of hardware, software and Internet emerging technologies for managing educational processes in Anambra State. Population of the study constituted 776 secondary school administrators which comprised 259 public and 517 private school administrators from 259 public and 517 private secondary schools respectively located within the six education zones



in Anambra State. Sample of the study comprised a total size of 389 administrators comprising 130 public and 259 private secondary school administrators from 389 public and private secondary schools, drawn at 50% (percent) using stratified random sampling technique. Justification for selecting these sample of public and private school administrators at 50% was a means to enable the researcher to have controllable sample size of their population in Anambra State. The choice of sampling selection is also in line with the recommendation of Nworgu (2015) who identified that 5% to 80% of any given population is adequate for any research work. A 25-item researcher's self-developed questionnaire structured on a 4-point scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) and titled: "Administrators' Efficiency towards Utilization of Emerging Technologies for Managing Educational Processes Questionnaire (AETUETMEPQ)" was the main instrument for data collection. Construction of this research instrument was determined by the purpose of the study and research questions. The research instrument was validated by three experts in the Department of Educational Management and Policy, and Department of Educational Foundations (Measurement & Evaluation expert), Faculty of Education, Nnamdi Azikiwe University, Awka, Anambra State. These experts determined the face and content validity of the research instrument and the correction made on some of the items were incorporated in the instrument before the final print out. Reliability of the questionnaire was established through a field test conducted on a sample of 15 public and 20 private secondary schools administrators selected from 15 public and 20 private secondary schools in Enugu State, which was not part of the study.

The scores obtained were computed using Cronbach Alpha method which gave internal consistency reliability value of 0.82, 0.88 and 0.81 for each of the three clusters and added up to yield an overall reliability value of 0.84, indicating that the questionnaire was reliable for conducting the study. The questionnaire was distributed to the respondents on a face-to-face and personal contacts by the researcher with the help of six research assistants who were familiar with the geography of Anambra State. These research assistants were instructed and guided to meet with the school administrators of the sampled secondary schools in Anambra State in order to gather the necessary information from them. An on-the-spot method was also adopted by the research assistants in distributing copies of the questionnaire to school administrators who wanted to fill theirs immediately. All the 389 copies of the questionnaire distributed to the respondents were recovered back by the researcher and research assistants at a return rate of 100%. Data collated were analyzed using mean scores and standard deviation. The decision rule for interpreting the scores on each statement on the questionnaire was benchmarked on a midpoint scale of 2.50. Only mean scores of the respondents' statements which rated 2.50 and above were regarded as an indication of Agree, and therefore, accepted. While mean scores of the respondents' statements which rated below 2.50 were regarded as an indication of disagree, and therefore, not accepted.

Presentation of Results

Research Question 1: How efficient are the public and private secondary school administrators towards utilization of emerging hardware technologies for managing educational processes in Anambra State?



Table 1: Mean Scores and SD of Public and Private School Administrators on their Efficiency Towards Utilization of Emerging Hardware Technologies for Managing Educational Processes in Anambra State

N = 389 (130 public & 259 private secondary school administrators)

S/N	Please indicate your efficiency towards utilizing the under listed emerging hardware technologies in your school. I am highly efficient in:	Public School Administrators			Private School Administrators		
		X	SD	Decision	X	SD	Decision
1.	using my personal laptops with latest windows version towards keeping records of work for managing the educational processes in school	2.27	1.04	Disagree	3.04	1.02	Agree
2.	using smart phones to communicate effectively with staff including parents in various manner for managing the educational processes in school	3.07	1.01	Agree	3.02	0.91	Agree
3.	playing any DVD device to organize students' extracurricular activities for managing the educational processes in school	3.15	0.83	Agree	2.93	1.05	Agree
4.	using tape recorder device to record information which will aid managing the educational processes	3.08	1.00	Agree	3.23	0.86	Agree
5.	operating the smart television touch screen to organize presentations that will enhance managing the educational processes in school	1.73	0.81	Disagree	3.18	0.76	Agree
6.	using public address system like microphone to address teachers and students in order to convey information that will lead to managing the educational processes in school	3.09	0.76	Agree	2.92	1.12	Agree
7.	operating the desktop computer with latest version of windows operating system so as to arrange all routine activities that will positively impact on managing the educational processes in school	2.18	1.05	Disagree	3.15	1.03	Agree
8.	using ipad embodied with different softwares to organize my work for managing the educational processes in school	1.76	0.75	Disagree	1.81	0.90	Disagree
9.	using the printers to print important information that will help in managing the educational processes in school	1.49	0.76	Disagree	2.02	1.00	Disagree
10.	using scanners to scan official documents which can be referenced or consulted when needed for managing the educational processes in school	2.25	1.07	Disagree	2.02	0.94	Disagree
11.	operating the photocopiers in order to duplicate information that will be filed to enhance managing the educational processes in school	1.93	1.08	Disagree	2.05	1.07	Disagree
Overall Mean Score & SD =		2.36	1.11	Disagree	2.67	1.11	Agree

Analysis of results in Table 1 from the respondents' responses revealed that both the public and private secondary school administrators rated items 2, 3, 4 and 6 above 2.50 of the acceptable mean score to show that they agreed with all these statements. They both rated items 8 to 11 below 2.50 of the acceptable mean score to show that they disagreed with these statement. The public secondary school administrators however rated items 1, 5 and 7 below 2.50 to disagree with these statements; whereas, the private secondary school administrators rated that same items 1, 5 and 7 above 2.50, agreeing to the statements. Their

grand mean and standard deviation is 2.36 (X) and 1.11 (SD) for the public-school principals indicating negative reactions from the school administrators; while that of the private school administrators is 2.67 (X) and 1.11 (SD) indicating positive reactions from the private school administrators; likewise showcasing that their mean score responses were all closely related. This result further indicated that the public secondary school administrators were not efficient towards utilization of emerging hardware technologies for managing educational processes in Anambra State; whereas the private secondary school

administrators were efficient in utilization of hardware emerging technologies. By this analysis, it shows that the private secondary school administrators were more efficient than the public secondary school administrators towards utilization of emerging hardware technologies for managing educational processes in Anambra State.

Research Question 2: How efficient are the public and private secondary school administrators towards utilization of emerging software technologies for managing educational processes in Anambra State?

Table 2: Mean Scores and SD of Public and Private School Administrators on their Efficiency towards Utilization of Emerging Software Technologies for Managing Educational Processes in Anambra State
N = 389 (130 public & 259 private secondary school administrators)

S/ N	Please indicate your efficiency towards utilizing the under listed emerging software technologies in your school. I am highly efficient in:	Public School Administrators			Private School Administrators		
		X	SD	Decision	X	SD	Decision
12.	using the latest version of 2019 excel or spreadsheet to compute all financial transactions for managing the educational processes in school	2.28	1.07	Disagree	1.85	0.96	Disagree
13.	using the latest 2019 version of Microsoft word in order to perform my administrative duties likewise overseeing record keeping for managing the educational processes in school	1.92	1.04	Disagree	3.07	0.94	Agree
14.	using the latest version of Microsoft PowerPoint to deliver any presentation for managing the educational processes in school	1.66	0.86	Disagree	3.23	0.89	Agree
15.	using the newest version of graphic design or the 3D animations that will sustain managing the educational processes in school	1.85	1.00	Disagree	2.11	1.08	Disagree
16.	using virtual realities software to provide instructional leadership that will enhance managing the educational processes in school	2.00	0.99	Disagree	1.83	0.84	Disagree
17.	using various computer-assisted instruction programmes to support my administrative duties such as supervision of instruction for managing the educational processes in school	2.08	1.00	Disagree	3.01	0.89	Agree
18.	using CALL (computer assisted language learning) software which is an interactive method of instruction serving for assessment of learning materials that helps learners achieve their goals of learning so as to promote managing the educational processes in school	1.95	0.78	Disagree	1.87	0.77	Disagree
Overall Mean Score & SD =		1.96	0.98	Disagree	2.42	1.09	Disagree

Analysis of results in Table 2 from the respondents' responses revealed that both the public and private secondary school administrators rated items 12, 15, 16 and 18 below 2.50 of the acceptable mean score to show that they disagreed with all these statements. Together, they did not rate any of the items above 2.50 of the acceptable mean score to show that they agreed with the statements. Rather, the public secondary school administrators however rated items 13, 14 and 17 below 2.50 to disagree with these statements; whereas, the private secondary school

administrators rated that same items above 2.50, agreeing to the statements. Their grand mean and standard deviation is 1.96 (X) and 0.98 (SD) for the public-school principals indicating negative reactions from the school administrators; while that of the private school administrators is 2.42 (X) and 1.09 (SD) also indicating their negative reactions; likewise showcasing that their mean score responses were all closely related. This result further indicated that both the public and private secondary school administrators were not efficient in utilization of emerging software technologies

for managing educational processes in Anambra State. By this analysis, it shows that both parties (public & private secondary school administrators) were not efficient towards utilization of emerging software technologies for managing educational processes in Anambra State.

Research Question 3: How efficient are the public and private secondary school administrators towards utilization of emerging Internet technologies for managing educational processes in Anambra State?

Table 3: Mean Scores and SD of Public and Private School Administrators on their Efficiency towards Utilization of Emerging Internet Technologies for Managing Educational Processes in Anambra State
N = 389 (130 public & 259 private secondary school administrators)

S/ N	Please indicate your efficiency towards utilizing the under listed emerging Internet technologies in your school. I am highly efficient in:	Public Administrators		School Decision	Private Administrators		School Decision
		X	SD		X	SD	
19.	using wired and wireless networks to connect to different websites which will impact on my administrative activities for managing the educational processes in school	1.96	0.87	Disagree	2.09	0.96	Disagree
20.	using the electronic mails (emails) such as Yahoo or Google to send information to teachers and parents in order to enhance managing the educational processes in school	3.12	0.94	Agree	3.01	0.99	Agree
21.	using cloud computing to organize school activities for managing the educational processes in school	1.75	0.93	Disagree	2.25	1.13	Disagree
22.	using educational platforms (Learning Management System (LMS) as Moodle) to organize curricular activities which will aid managing the educational processes	2.05	0.94	Disagree	1.96	0.96	Disagree
23.	using various social media app such as Facebook, Twitter, Instagram, teleconferencing, zoom, Skype, WhatsApp, videoconferencing, forums, online group chats, YouTube, among many others to conduct my work like organizing online meetings, etc, for managing the educational processes in school	2.10	0.96	Disagree	2.25	1.25	Disagree
24.	using games such as (Games on Facebook, etc.), programs that offer educational resources (tutorials, open resources) in order to get information that will lead to managing the educational processes in school	1.69	0.84	Disagree	2.23	1.16	Disagree
25.	using internet multimedia or Web 2.0 like the construction of wikis and podcasts in a collaborative way, also blogs so as to generate and transmit knowledge on behalf of students or teachers which will positively impact on managing the educational processes in school	1.95	1.07	Disagree	2.16	1.00	Disagree
Overall Mean Score & SD =		2.09	1.04	Disagree	2.28	1.11	Disagree

Analysis of results in Table 3 from the respondents' responses revealed that both the public and private secondary school administrators rated only item 20 above 2.50 of the acceptable mean score to show that they agreed with all these statements. They both rated items 19, 21 to 25 below 2.50 of the acceptable mean score to show that they disagreed with these statement. Their grand mean and standard deviation is 2.09 (X) and 1.04 (SD) for the public-school principals indicating negative reactions from the school

administrators; while that of the private school administrators is 2.28 (X) and 1.11 (SD) also indicating negative reactions from the private school administrators, likewise showcasing that their mean score responses were all closely related. This result further indicated that both public and private secondary school administrators were not efficient towards utilization of emerging Internet technologies for managing educational processes in Anambra State. By this analysis, it shows that both parties (public & private secondary school



administrators) were not efficient towards utilization of emerging Internet technologies for managing educational processes in Anambra State.

Discussion of Findings

The findings of the study generally revealed among others that although many of the public and private secondary school administrators were inefficient in utilizing the emerging technologies, the private secondary school administrators were efficient towards the utilization of most of the emerging hardware technologies for managing educational processes in Anambra State more than the public secondary school administrators. The finding of this study indicated that the public secondary school administrators were not efficient towards utilization of the emerging hardware technologies for managing educational processes in Anambra State; whereas the private secondary school administrators were efficient in utilization of emerging hardware technologies. This finding shows that the private secondary school administrators were more efficient than the public secondary school administrators towards utilization of emerging hardware technologies for managing educational processes in Anambra State. The private secondary school administrators were more efficient than the public secondary school administrators towards using their personal laptops with latest windows version to keep records of work in the school. They were more efficient than their public school counterparts in operating the smart television touch screen to organize presentations. They were more efficient than the public secondary school principals in operating desktop computer with latest version of windows operating system so as to arrange all routine activities that will positively impact on school administration. Oyier, Odundo, Ganira and Wangui (2015) in a study on the effects of ICT integration in management of private secondary schools in Nairobi County found out that the adoption of ICT is high in private schools irrespective of curriculum offered. The use of ICT

with schools having installed current hardware and software required for implementation of ICT strategy in management was high among the private schools. Findings found out that the use of ICT was more in private schools with higher enrollment and having both day and boarding components. Uses of ICT enabled these private institutions achieve improvements in financial, administrative and instruction management. In financial management 62.5% of private schools had automated accounts, 71.9% payroll and 53.1% budgeting operations. In administrative management 68.75% automated stores, 56.25% students' records and 62.50% staff records. In instructional management 53.10% automated timetabling, 84.30% examinations and 76.90% students' progress reports. This present study finding also corroborates and agrees with Ogunshola (2019) study who found out that there was a significant difference between principals' utilization of ICT in public and private senior secondary schools in FCT because the principals in the private senior secondary schools utilized ICT resources more than the principals in the public senior secondary schools. He concluded that the utilization of ICT resources could enhance effective management of public and private senior secondary schools in FCT. Furthermore, the findings of this study supports the findings of Adeyemi and Olaleye (2010) that government is not fully ready to imbibe ICT for the effective management of secondary schools. On the other hand, the findings of this study contradicts the findings of Adeyemi and Olaleye (2010) who reported that the use of ICT equipment in the secondary schools was at a low level in Ekiti State, Nigeria. Furthermore, the findings of this study revealed that, the level of ICT utilization by principals in the management of private senior secondary schools was to a very large extent in FCT. The findings of this study supported the findings of Nwosu (2003), who reported that ICT assists the school administrators to meet the task of school management in the areas of curriculum and instruction, school community relationship



and school business operations. In support of this, Mohammed (2006) stated that the introduction of ICT in schools enhances the daily school routine, programme, updating the evaluation of school programmes, solving individuals' or groups' as well as staff development. Lastly, the study found out that there was a significant difference between principals' ICT utilization in the management of public and private senior secondary schools in FCT. From the results, the principals in the private senior secondary schools utilized ICT resources more than the principals in the public senior secondary schools because most of the ICT resources were provided in private senior secondary schools than in public senior secondary schools. The findings of this present study is not in agreement with Nja and Idiege (2019) which found out that chemistry teachers in public schools in Calabar had more ICT skills than those in private schools. However, both the public and private secondary school administrators were efficient in using smart phones to communicate effectively with staff including parents in various manners, playing any DVD device to organize students' extracurricular activities in school, using tape recorder device to record information, and in using the public address system like microphone to address teachers and students in order to convey information in school. This finding agrees with and is similar to the findings of Afzaal (2012) who found that school administrators use ICT for administrative purposes.

It was further discovered that both the public and private secondary school principals were inefficient using emerging hardware technologies like the ipad embodied with different softwares to organize their work for managing the educational processes in school. The two parties (public & private secondary school administrators) were also inefficient using printers to print important information that will help in managing the educational processes in school, using scanners to scan official documents which can be referenced or consulted when needed for managing the educational processes in school, and

operating the photocopiers in order to duplicate information that will be filed to enhance managing the educational processes in school. This finding corroborates with Makewa, Meremo, Role and Role (2013) study which found out that administrators did not apply technologies much in the educational processes namely: students and personnel administration, financial, general and supervision of instruction. The present study finding equally agrees with the findings of Wanjala (2013) study on teachers' perceptions on the use of information communication technology in the administration of public secondary schools in Kimilili District, Bungoma County, Kenya, which revealed that basic ICT hardware and software are available in most schools but they are entirely not adequate for use in performing administrative tasks. Even though the teachers were willing to fully embrace ICT in administration, its use in administration was limited to very few administrative tasks due to inadequacy of hardware or absence of relevant software. Another finding was that the use of ICT in administration of public secondary schools was limited very few tasks. It was mainly used in preparation of student report forms for parents, registration and confirmation of students for national exams, preparing schemes of work and lesson plans in most schools. They could use the computer to store and retrieve past examination papers, print results, merit list and make copies of official documents. Most teachers in the study indicated that use of ICT had influenced their performance of administrative tasks since they were able to cut down on costs. Using ICT tools for administration in secondary schools according to the teachers reduced time spent on routine tasks, improved communication, and improved quality of reports. Head teachers indicated that accurate and faster preparation of reports, improved performance of school administrative tasks, time saving and convenience were the main effects of using ICT.

The finding of this present study further indicated that both the public and private



secondary school administrators were not efficient in utilization of emerging software technologies for managing educational processes in Anambra State. This finding revealed that both parties (public and private secondary school administrators) were not efficient towards utilization of emerging software technologies for managing educational processes in Anambra State. This finding includes that both the public and private secondary school administrators were inefficient using emerging software technologies such as the latest version of 2019 excel or spreadsheet to compute all financial transactions for managing the educational processes in school. They were both (public and private) inefficient using the newest version of graphic design or the 3D animations. They were both inefficient using virtual realities software to provide instructional leadership, and in using CALL (computer assisted language learning) software which is an interactive method of instruction serving for assessment of learning materials that helps learners achieve their goals of learning. This finding is in agreement with Nja and Idiege (2019) who confirmed low percentage (%) of the public and private schools used software technologies like the spread-sheet to plot graphs. However, even though both the public and private secondary school administrators were found inefficient in using emerging software technologies; the private secondary school administrators were much efficient using emerging software technologies such as the latest 2019 version of Microsoft word. The private secondary school administrators were efficient using the latest version of Microsoft PowerPoint to deliver any presentation for managing the educational processes in school more than the public secondary school administrators. The private secondary school administrators were further efficient more than the public secondary school administrators using various computer-assisted instruction programmes to support their administrative duties such as supervision of instruction. This finding is corroborates and agrees with the finding of Ikediugwu and Anyanwu

(2019) study on comparative analysis of principals' ICT competencies for management of information system in public and private secondary schools in Anambra State, Nigeria, which found out that in database management, public school principals were not competent while private school principals were moderately competent. This finding is not line with such empirical studies like those of Nja and Idiege (2019) which found out there was clear evidence that private school teachers did not have ICT skills as those from public schools. Nja and Idiege (2019) study also reported that the situation may not be unconnected with the fact that public school teachers were more exposed to ICT training workshops than their counterparts who are in private schools. The proprietors of private schools may not have sufficient funds to sponsor their teachers for workshops on regular basis as public schools do.

It was also found out in the preset study that both public and private secondary school administrators were not efficient towards utilization of emerging Internet technologies for managing educational processes in Anambra State. This finding included that both parties were also inefficient using such emerging Internet technologies as wired and wireless networks to connect to different websites which will impact on their administrative activities for managing the educational processes in school. They were both inefficient using cloud computing to organize school activities. They were also inefficient using educational platforms (Learning Management System (LMS) as Moodle) to organize curricular activities. Both parties were inefficient using various social media app such as Facebook, Twitter, Instagram, teleconferencing, Zoom, Skype, WhatsApp, videoconferencing, forums, online group chats, YouTube, among many others to conduct their work like organizing online meetings, etc for managing the educational processes in school. They were further inefficient using games such as (Games on Facebook, etc.), programs that offer educational resources



(tutorials, open resources) in order to get information that will lead to managing the educational processes in school. Also, the public and private secondary school administration inefficiency in utilization of emerging Internet technologies showcase in their inability towards using internet multimedia or Web 2.0 like the construction of wikis and podcasts in a collaborative way, also blogs so as to generate and transmit knowledge on behalf of students or teachers which will positively impact on managing the educational processes in school. This finding does not agree with that of Nja and Idiege (2019) which found out that both public and private school teachers had a high percentage of ICT skills in communication in social networks. The finding is also equally not in line with that of Ali, Ashraf and Yasmin (2020) study on a comparison between the teachers of public and private schools about their digital skills found out that public and private institutes mostly vary regarding the use of digital skills. It was also found out that private school teachers were more innovative in accessing digital skills. However, both the public and private secondary school administrators were efficient in using emerging Internet technologies such as the electronic mails (emails) which incorporates Yahoo or Google to send information to teachers and parents in order to enhance managing the educational processes in school. The present study finding disagrees and deviates with Ikediugwu and Anyanwu (2019) on comparative analysis of principals' ICT competencies for management of information system in public and private secondary schools in Anambra State, Nigeria, which found out that in web based/networking, private school principals were very competent while principals of public school were not. Ikediugwu and Anyanwu (2019) study confirmed that there was significant difference in mean competency scores of public and private secondary school principals in web base/ networking competency. Generally, the discoveries from the findings indicated that the public and private secondary school administrators were not efficient

using both emerging software and Internet technologies for managing educational processes in Anambra State. However, the public secondary school administrators were highly inefficient in using all the emerging hardware, software and Internet technologies for managing educational processes in Anambra State. This situation of both public and private secondary school administrators calls for immediate actions in order to boost their proficiency and efficiency towards utilization of emerging technologies for the general administration of the school.

Conclusion

The conclusion from the findings of this study is that the administrators of both public and private secondary schools in Anambra State were not using emerging technologies efficiently for school administration. However, the inefficiency was more prominent with public school administrators. The situation therefore, calls for absolute redressing in order to ensure that quality and effective school administration and management is highly propagated in the educational processes in Anambra State. Hence, the recommendations which have been proffered below.

Recommendations

From the findings of this study, the following recommendations were made:

1. Both the public and private secondary school administrators should regularly undergo continuous ICT training and retraining programmes in order to boost their efficiency towards utilizing emerging technologies required for school administration. Anambra State government, Ministry of Education, Post Primary Schools Service Commission (PPSSC) and the private secondary school owners should provide adequately, the necessary emerging hardware technologies for better administration in secondary schools.
2. The regulatory agencies such as the State Ministry of Education and Post Primary Schools Service Commission (PPSSC)



including the private secondary school owners should make adequate provision of educational scholarship, ICT workshops, conferences and seminars for school administrators on effective use of emerging software technologies for school administration.

3. The public and private secondary school administrators in Anambra State on their own part should ensure that they constantly utilize the emerging Internet technologies in the general administration of the school as a way of improving their proficiency on its use.

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