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EXTENDING E-ADMINISTRATION CAPABILITIES FOR SAFE SCHOOL MANAGEMENT USING ICT PERIPHERAL DEVICES IN SECONDARY SCHOOLS IN EBONYI STATE, NIGERIA

German, Ihihian Oluwatoni[1],
Obiekwe, Kingsley K.[2i],
Ogbo, Rosita Nwaribeaku[3],
Mbonu, Obianuju Adaobi[4],
Chukwu, Nwamaka Regina[5]
[1,2,3&5]Department of Educational Management and Policy,
Faculty of Education, Nnamdi Azikiwe University,
Awka, Anambra State, Nigeria
[4]Federal College of Education (Technical) Umunze,
Anambra State, Nigeria

Abstract:
This work investigated extending e-administration capabilities for safe school management using ICT peripheral devices in Ebonyi State. Specifically, it investigated the ICT peripheral devices available to principals of public and private secondary schools in Ebonyi State and the extent they use these peripheral devices in extending the functionality of e-administration platforms for managing safe school in the face of growing insecurity in secondary schools in Ebonyi State. Two research questions guided the study and two null hypotheses were tested at 0.05 level of significance. Descriptive survey research design was adopted for the study. The population was 350 principals, while multistage sampling procedure was adopted to sample 120 principals (60 public and 60 private secondary school principals). A 10-item questionnaire which was divided into two parts was used to collect data for the study. Kuder-Richardson 21 and Cronbach's Alpha method were used to establish the reliability for the two parts of the questionnaire and the reliability coefficients obtained were 0.98 and 0.87 respectively. Data analysis was done using frequencies and percentages for research question one, while mean was used for research question two. X^2 and t-test were used to test Ho1 and Ho2 respectively at 0.05 level of significance. Findings indicated that all the five ICT peripheral devices were not available in public secondary schools, but one of the five ICT peripheral devices was available in private secondary schools. Finding from Ho2 indicated that there was no significant difference between the mean ratings of public and private school principals on the extent to which they apply ICT peripheral devices to extend the scope of their e-administration platforms in secondary schools in Ebonyi State.

[i] Correspondence: email kayceeobiekwe@gmail.com

Based on these findings conclusion was drawn and it was recommended among others that the Parents Teachers Association (PTA) should help by donating some ICT peripheral devices that can be used to enhance school management and safety of their children.

Keywords: peripheral devices, safe school, e-administration, management

1. Introduction

Acts of violence, for decades, have threatened the peace in schools. From the more subtle bullying to more violent stabbing and shooting; from psychological trauma of abductions and hostages to worrying brutal murders thereafter. The global North and South have had their fair share of violence in the school ecosystem. The consequence of this is the growing statistics of unsafe schools in some climes, necessitating one kind of cooperation and responses on safe schools with the Asian Safe School Initiative (ASSI) initiated in 2012 being the first of such in modern education history.

Painfully, Worldwide Initiative for Safe Schools (2020) noted that while in Europe every school is at risk of either of terrorism, retribution and security threats, the most important consequences of allowing schools to become and remain unsafe is lack of perception and preparedness. This worry about poor perception of the issue and leading to poor preparedness is in line with Theory of Planned Behaviour (TPB) and Theory of Reasoned Action (TRA). For example, finding by Venkatesh, Morris, Davis and Davis (2003) as well as Venkatesh, Davis and Morris (2007) indicated that where there is no Behavioural Intention, there may not be Use Bahaviour. This implies that perception is prerequisite to intention, which then leads to action. In the context of this work, if governments or critical stakeholders in the secondary school subsector do not perceive the need for adoption for technology or SSI, there will not be likelihood of intention to adopt policies that support or fund its implementation. As Watt (2014) noted, the intention or objectives of SSI revolve around the need to keep schools safe and their doors open in time of national emergencies. For example, the SSI has an objective of witnessing a respite in the dimension and the frequency of attacks on school children. Another objective is to keep school doors open always. Similarly, it has an objective of developing alternative schooling arrangement and for the students at the highest risk. So, when the safe school initiative (SSI) was launched on May 7, 2014, in Nigeria, many believed that schools, school management and learning activities will be continuous, unbroken and safe. To this end, Worldwide Initiative for Safe Schools (2020) indicated that some of the equipment given to initiate this in Nigeria were: 1,350 Safe School kits made up of a safety manual, video DVD and audio CD on security tips.

However, in recent years, the emergence of the duo of herdsmen and bandits added a layer of fear and frustration to national security concerns precipitated by Boko Haram terrorists in Nigeria. Now there is regular and massive kidnapping of school

children, making safety and safety measure occupy the front burner of national and state educational discourse. From the benefit of hindsight, Lawal (2020) observed that on 11th of December 2020, more than 300 schoolboys from Government Science Secondary School, Kankara in Katsina, were kidnapped by bandits though they were later released. Since December, which is less than five months from the date of this work, more than 600 students have been abducted from schools in different states in north-west Nigeria, highlighting a worrying development in the country's kidnap-for-ransom crisis.

Principals of secondary schools are particularly disturbed as over 96% of these figures are from secondary schools alone. Since, 2015, sustained upsurge in abductions, unexplained disappearances, ransom-taking, burglary and so on, in schools, have put additional pressure on the principals to find more effective ways of ensuring safety while security function is now becoming a new school management function they dare not ignore (German, 2020). Consequently, efforts to make available and apply more efficient technologies to reasonably detect and deter intruders before, during and after such abductions is a thing government and principals of secondary schools should give an urgent thought.

Using ICT peripherals devices such as: smart phones, biometric data capture machine, scanner, closed circuit television camera, etc. to e-administration platforms with internet connectivity can enhance safe school, delivery of instructions and several essential management cum administrative services. This is to say the functionalities of e-administration platform when extended using ICT peripherals and similar devices can enhance safe schools. It can help to keep schools open virtually and indefinitely. According to German and Ikediugwu (2021b), functionally, with appropriate peripheral devices connected, e-administration can be used to track the attendance of students and staff as well as enhancing principals' ability to mitigate security and safety risks in schools remotely once the visual/facial images of such students or staff are detected by the sensor. This is in addition to the capacity of the peripheral devices to help in marking the attendance, regularity and punctuality of the students and staff electronically. In fact, German and Ikediugwu (2021a) noted that a lot of emerging administrative and management challenges in secondary schools can be handled by expanding its functionality by connecting some related ICT peripherals such as camera and biometric data capture machines. Through devices which captures images within the reach of the devices, security personnel contacted, mobilized and given direction and information on arrest as the offence is being committed is relayed to the principal real-time (German, 2020).

Ebonyi State is one of the states with visible and worrying incidences of attack. Perhaps in anticipation of the future development of these attacks and the compelling need to make the state safe, the present administration has been observed to put CCTV cameras in strategic locations in the state with the aim of boosting security architecture in the state. Data capture machines are also routinely used for several verification purposes. But availability and application of these and similar ICT peripheral devices via

e-administration platforms in the school management is not clear. Yet, on the availability and application of these devices presently in management of secondary schools in the state rests the successful implementation of policy on safe schools. Investigating this is the major thrust of this study.

2. Research Questions

1) What are the ICT peripheral devices available to principals in the management of public and private secondary schools in Ebonyi State?
2) To what extent do principals apply ICT peripheral devices to extend the scope of their e-administration platform in the management of public and private secondary schools in Ebonyi State?

2.1 Hypotheses

The following null hypotheses were formulated to guide the study and they were tested at 0.05 level of significance.

1) There is no significant difference between the mean ratings of principals on the peripheral devices available in the management of public and private secondary schools in Ebonyi State.
2) There is no significant difference between the mean ratings of principals of public and private secondary schools on the extent they apply ICT peripheral devices to extend the scope of their e-administration platforms in school management.

3. Method

Descriptive survey research design was used. The population was 350 principals, while multistage sampling procedure was adopted to sample 120 respondents from 6 out of 13 LGAs in the state. A 10-item researchers'-developed questionnaire of two parts, one for availability and the other for application, was used to collect data. Three experts validated the questionnaire. KR-21 and Cronbach's Alpha were used to establish the reliability of the two parts of the questionnaire and the reliability coefficients were 0.98 and 0.87 respectively. Data collected were analysed using frequencies and percentages for research question one, and mean for research question two. Chi Square was used to test Ho1 and t-test was used to test Ho2 at 0.05 level of significance.

4. Results

The table below shows the frequencies and percentages on the ICT peripheral devices available to principals in the management of public and private secondary schools in Ebonyi State. The analysis indicates that in public schools, all the five peripheral devices are not available to principals in over 50% of the schools while in private schools four of

the five devices are not available in over 50% of the schools. Only internet is available in over 50% of the private schools.

Table 1: Frequencies and Percentages on the Available ICT Peripheral Devices by School Type

	Public School (60)					Private School (60)				
	Available		Not Available			Available		Not Available		
	Freq	%	Freq	%	Remark	Freq	%	Freq	%	Remark
1. Smart phone	12	20	48	80	NA	10	16.7	50	83.3	NA
2. Biometric data capture machine	09	15	51	85	NA	13	21.7	47	78.3	NA
3. Scanner	08	13.3	52	86.7	NA	17	28.3	43	71.7	NA
4. Closed circuit television	09	15	51	85	NA	11	18.3	49	81.7	NA
5. Internet	13	21.7	47	78.3	NA	33	55	27	45	A

Key: NA= Not available; A= Available

Table 2: Mean Ratings on the Extent to Which Principals Apply ICT Peripheral Devices in Management by School Type

	Public School (N=60)			Private School (N=60)		
	Mean	SD	Remark	Mean	SD	Remark
1. I use biometric data capture machine to enhance the capability of e-administration platform in my school	1.55	.87	Low Extent	1.63	.94	Low Extent
2. I used close circuit-camera to enhance monitoring and supervision	1.50	.77	Low Extent	1.52	.87	Low Extent
3. I use internet connection to handle school's online real-time issues	1.70	1.06	Low Extent	2.02	1.30	Low Extent
4. Digital scanners are added to enhance my e-administration platform	1.50	.79	Low Extent	1.62	.88	Low Extent
5. I use mobile phones to enhance e-administration platform	1.90	1.12	Low Extent	2.52	1.26	High Extent
Mean of Means	1.63	.92	Low Extent	1.86	1.05	Low Extent

Table 2 shows the mean of means and standard deviation scores of 1.63 and 0.92 for public schools while private schools had 1.86 and 1.05. Both mean of means are less than 2.50 indicating that the extent to which principals of public and private secondary schools apply peripheral devices in school management is low. Item by item analysis shows the principals apply the five listed platforms to a low extent, with mean ranging from 1.50 to 1.90. On the other hand, principals of private schools apply only one of the platforms (item 10, mean=2.52) to a high extent. The remaining four platforms (item, 6, 7, 8 and 9) are applied to a low extent as shown by their means ranging from 1.52 to 2.02.

Table 3: Chi-square analysis on the peripheral devices available to principals in management of public and private secondary schools

	Public School N=60		**Private School N=60**				
	Available	**Not Available**	**Available**	**Not Available**	**X^2**	***P*-value**	**Remark**
1. Smart phone	12 (20%)	48 (80%)	10 (16.7%)	50 (83.3%)	.22	.63	Not sig
2. Biometric data capture machine	9 (15%)	51 (85%)	13 (21.7%)	47 (78.3%)	.89	.34	Not sig
3. Scanner	8 (13.3%)	52 (86.7%)	17 (28.3%)	43 (71.7%)	4.09	.04	Sig
4. Closed circuit television	9 (15%)	51 (85%)	11 (18.3%)	49 (81.7%)	.24	.62	Not sig
5. Internet	13 (21.7%)	47 (78.3%)	33 (55%)	27 (45%)	14.10	.00	Sig

Table 3 shows that three of the five items had *P*-values greater than the stipulated 0.05 level of significance. This indicates that there is no significant difference in the peripheral devices available to principals in management of public and private secondary schools in Ebonyi State. The Ho1 was therefore not rejected.

Table 4: t-test of significant difference of the mean ratings of public and private secondary school principals on their use ICT peripheral devices

	Public School (N=60)		**Private School (N=60)**				**df=118**
Item Description	**Mean**	**SD**	**Mean**	**SD**	**t-cal**	***P*-value**	**Remark**
1. I use biometric data capture machine to enhance the capability of e-administration platform in my school	1.55	.87	1.63	.94	-.50	.61	Not Sig
2. I used close circuit-camera to enhance monitoring and supervision	1.50	.77	1.52	.87	-.11	.91	Not Sig
3. I use internet connection to handle school's online real-time issues	1.70	1.06	2.02	1.30	-1.46	.14	Not Sig
4. Digital scanners are added to enhance my e-administration platform	1.50	.79	1.62	.88	-.76	.44	Not Sig
5. I use mobile phones to enhance e-administration platform	1.90	1.12	2.52	1.26	-2.84	.00	Sig

The analysis displayed in Table 4 shows that the *P*-values associated with the calculated t-values in four of the five items were greater than the stipulated 0.05 level of significance. This indicates that there is no significant difference between the mean ratings of public and private school principals on the extent to which they apply ICT peripheral devices to extend the scope of their e-administration platforms in secondary schools in Ebonyi State. The Ho2 was therefore not rejected.

5. Discussion of Findings

Findings of the study indicates that in public schools, all the five peripheral devices are not available to principals in over 50% of the schools while in private schools four of the five devices are not available in over 50% of the schools. Only internet is available in over 50% of the schools. It was found also that in public schools, all the five ICT peripheral devices: Smart phones. Biometric data capture machine, scanners, CCTV and internet were not available to principals. On the part of private secondary school principals, only internet was available. This situation is contrary to the position of Awan and Zia (2015); and Barua and Viechnicki (2017), who noted that private schools make available more infrastructure that can enhance school management and using measures of efficiency and technology adoption, sometimes appear to favor the private sector.

However, it has been observed that in the use of technology for administration, the basic components such computer, telephone are given priority. In other words, using biometric data capture machine, scanners, CCTV and internet is considered a notch higher especially in disadvantaged states. An empirical study that investigated use of ICT in school administration in a disadvantaged community in West Cape Province, South Africa, by Chigona, Chigona, Kayongo and Kausa (2010) corroborated this assertion. One of the findings from the study indicated that once commodification of the technology is not yet achieved most user will likely remain elementary in their use and adoption of technology. This is despite that most educators in the study believed that ICTs could aid teaching and learning. So, Ebonyi State being one the few educationally disadvantaged states in Nigeria may have been influenced by the intervening variables in technology use and adoption as demonstrated by Venkatesh et al. (2003).

Findings also indicate that both types of schools do not apply ICT peripheral devices to expand the capability of their e-administration platform. The reason for this may be because to use these devices, the principal or administrator must be very deliberate with the use, and eventual adoption of the e-administration, rather than the social or external compelling factor. This is supported by the finding of Krishnaveni and Meenakumari (2010) which indicated that social status or facts have no impact on use and adoption of technology. However, this contrasts with the finding of Afshari, et al. (2008) and Awan and Zia (2015). In Afshari, et al. (2008), for instance, it was found that Iranian principals use e-administration to the extent that the principal acquire personal ICT peripherals and devices to aid their work. This attitude, according to the finding, was especially found in the principals of private school where majority of the respondents who have this attitude, 60%, worked in private schools, while 40% worked in public schools. And in the findings of Awan and Zia (2015), it was discovered that private schools are more ready to spend on infrastructure such as Biometric data capture machine, scanners, CCTV and internet that support effective school management to meet their need to offer higher quality of education than the public schools. The difference however could be that, similar to the educational disadvantage and socioeconomic

challenges, principals in the study do not have their personal ICT peripheral devices with which they can expand the e-administration platforms where available.

The finding from the hypothesis indicates that the difference between the mean ratings of public and private school principals on the extent to which they use peripheral devices to extend the scope of their e-administration platforms in secondary schools in Ebonyi State was not significant. This finding contrasts with the finding of Kiptalam and Rodrigues (2015) who found that most schools, especially private, are widely embracing ICT. However, the finding is in line with Venkatesh et al. (2003) which noted that where there is no Behavioural Intention in technology adoption and use, there may not be Use Bahaviour.

Thus, the finding therefore is similar to what obtained with the principals not applying proprietary e-administration platforms. This outcome might be connected to the fact that where social factor requiring the principal to apply technology is low, it leads to a situation where the principals will be reluctant in adopting and using technology. Secondly, poor educational development often leads to low socio-economic status of society. Where this holds true, it can as well affect the principals making the principals in such societies unable to afford buying the proprietary e-administration software.

6. Conclusion

This study investigated the ICT peripheral devices available to principals of public and private secondary schools in Ebonyi State and the extent they use these peripheral devices in extending the functionality of e-administration platforms for managing safe school in the face of growing insecurity in secondary school subsector in Nigeria. Based on the data collected, analyzed and findings discussed in this study, it was among others concluded that, generally, both public schools and private schools are similar. This extent of similarity is based on principals' responses on most of the ICT peripheral devices available and applied in the management of schools in Ebonyi State both for effective school administration and towards safe school initiative.

6.1 Recommendations

1) The Parents Teachers Association (PTA) should help by donating some ICT peripheral devices that can be used to expand this already in existing capacity of the principals for school management and safe school.
2) Proprietors of private schools and government should make some indicators for appraisal for promotion to higher managerial positions to be contingent upon satisfactory possession of related ICT knowledge and application of e-administration. This will make individual principal and even those in lower cadre to seek to seek and apply ICT peripheral and devices as well as associated skills in the course of their school work.

Conflict of Interest Statement

The authors declare no conflicts of interests.

About the Authors

German, Ihihian Oluwatoni is a PhD student in the Department of Educational Management and Policy, Faculty of Education, Nnamdi Azikiwe University, Awka, Anambra State. He is member of Nigerian Institute of Management and the Managing Director of Headstart Educational Consult Limited Abakiliki, Ebonyi State. He has written and coauthored serval academic papers in reputable journals within and outside the country. His areas of interest include: Knowledge management, ICT in Education, Administration and Planning, Educational Policy, Entrepreneurship, Inclusive Education.

Obiekwe, Kingsley Kenechukwu (PhD) is a Doctor of Educational Management and a lecturer in the Department of Educational Management and Policy, Nnamdi Azikiwe University, Awka, Anambra State. He is an educational research consultant and a member of Nigerian Association for Educational Administration and Planning (NAEAP). He is an ardent scholar and has published many journals and academic papers locally and internationally. Areas of interest include: Educational Management, Educational Planning, Educational Policy and Leadership and Educational Management Information System.

Ogbo, Rosita Nwaribeaku (PhD) is a lecturer in the Department of Educational Management and Policy, Faculty of Education, Nnamdi Azikiwe University, Awka, Anambra State. She is a member of Nigerian Association of Educational Administration and Planning (NAEAP) and has written many academic papers published within and outside the country. Her areas of interest include: Educational Leadership, Management and Planning, Gender issues in Education, Educational Policy and Management Information System.

Mbonu, Obianuju Adaobi (PhD) is a lecturer in the Department of Educational Management & Policy, School of Education, Federal College of Education (Technical) Umunze, Anambra State, Nigeria. She is a scholar who has contributed immensely to the growth of education through her contributions in numerous book chapters including local and international journal publications, constant participation in academic conferences, seminars and workshops coupled with her exposures in teaching professions at different levels of education. She has also attended different conferences, seminars and workshops both at local and international levels. She holds membership with several professional bodies like NAEAP, CCEAM, WCCI, among others. Obianuju is an astute educationist with lots of experiences in research and supervision.

Chukwu, Nwamaka Regina is a lecturer in the Department of Educational Management and Policy, Faculty of Education, Nnamdi Azikiwe University, Awka, Anambra State. She is an erudite scholar and has authored and coauthored several academic papers.

Areas of interest include: Educational Supervision, Educational Management and Gender Studies in Education.

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