



IMPACT OF DIGITIZATION ON SECURITY MANAGEMENT IN PUBLIC SECONDARY SCHOOLS IN KATSINA-ALA LOCAL GOVERNMENT AREA OF BENUE STATE, NIGERIA

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Abstract

This study investigated impact of digitization on security management in Katsina-Ala Local Government Area of Benue State, Nigeria. Two research questions guided the study and two hypotheses were tested for study. The study adopted ex post facto survey research designed. The population of the study was all the 560 teachers from 22 public secondary schools in Katsina Local Government Area Benue State, Nigeria. A sample of 203 teachers was randomly selected using purposive random sampling technique. The instrument for data collection was researchers' structured questionnaires titled "Digitization and Security Management Questionnaire (DSMQ)". The instrument was validated by three experts, two experts in Educational Management and one expert in Science and Mathematics Education all in Faculty of Education Benue State University Makurdi Nigeria. The questionnaire was trial tested on 30 teachers in two public secondary schools who were part of the population but not part of sampled population. The Cronbach Alpha was used to determine the reliability of the instruments and the result yielded reliability coefficient of 0.89. This showed that the instrument was reliable enough to achieve its purpose. A four-point likert-scale was used to establish the disparity in the respondents' opinions with a response mode of Strongly Agree (SA)=4; Agree (A)=3; Disagree (D)=2 and Strongly Disagree (SD)=1. The data collected were analyzed using Mean Scores and Standard to answer research questions. Chi-square goodness of fit was used to test hypotheses at 0.05 level of significance. The findings of the study showed that surveillance cameras and weapon detectors have significant impact on security management in public secondary schools in Katsina-Ala Local Government Area of Benue State, Nigeria. It was recommended that management of public secondary schools should intensify integration digitization for security management through the use of surveillance cameras such as emergency surveillance cameras, simple video cameras, high-definition cameras and that they should also use hand-held concealed weapon detectors, pop-up shelters, protective covers and operational test pieces so as to achieve high security management towards the realization of school goals and objectives.

Keywords: Digitization, security management, surveillance cameras, weapon detectors

Introduction

Security management has become an integral aspect of schools administration and management given the need for safety of lives and properties of schools. In any organization security is necessary for the survival of such organization. Where there is little or no security management safety lives and property may not be guaranteed. Security is defined as freedom from danger, intimidation, apprehension, the feeling or assurance



of safety, peace of mind or absence of fear and the certainty or assurance of good life or welfare (Ahamuefla, 2017). Security constitutes one of the fundamental objectives and indeed the foremost responsibility of every government and school administrators. In Nigeria, the constitution unequivocally spelt out as a fundamental objective and directive principle of state policy that “the security and welfare of the people (of Nigerians) shall be the primary purpose of government” (Section 14 (2) (b) of the Constitution of the Federal Republic of Nigeria, 1999). Nigeria in recent times has witnessed an unprecedented level of security issues in schools and the society at large (Daniel, 2018). Daniel adds that issues such as kidnapping, bombing, communal crises are all forms of security challenges that have been threatening various communities and school environments. Isaac, Ajayi and Haastrup (2014) maintain that keeping schools safe for effective teaching and learning and implementation of various school programmes requires dynamic security management.

Security management is one of the responsibilities of school administrators and relevant stakeholders such as security agencies like police, volunteer guard and Nigerian Civil Defence Corps in keeping schools free from threat. Isaac, et al. (2014) describes security management as the identification of an organization's assets such as people, buildings, machines, systems and information facilities, followed by the development, documentation, implementation of policies and procedures for protecting assets. Security management is the process of developing and documenting policies to protect assets from internal and external threats and cyber threats (Ike, 2015). A school is supposed to be secured to the extent that it is not in a position to lose its educational goals, lives, property and liberty of staffs and students (Ahamuefla, 2017). A school that is designed to be a center for learning needs to be a place that is safe, secured, peacefully. In a situation where the school premises seem to be unsafe for learning, staff and students may always feel reluctant to go to school.

Over the years and in recent time, security has been one of the issues affecting various communities in Benue State particularly in Katasina Local Government Area. Security issues such as militia attacks, banditry, kidnapping, rapping, communal crises, Fulani herdsmen attack, armed robbery, students' riot, sexual harassment, bullying and sexual molestation seem to threaten peaceful existence of public secondary schools. School managers are to work so that school experience humanized environment whereby the students could feel connected, valued and motivated to learn and achieve the school objectives (Nwosu & Uba, 2019). They also have to improve the school environment so that the teachers could feel confident, respected and safe. However, the spate of security challenges in public secondary schools in Katsina-Ala Local Government Area of Benue State seems to hinder effective the realization of these objectives. Fasasi and Ingya (2014) opine that for school safety, modern approaches are needed for security management especially in the era of digitization.

Digitization is one of the effective approaches for security management in organizations like educational institutions (McNulty, 2021). Digitalization in education is the translation of all kinds of information such as text, audio, pictures, video and other data from multiple sources into digital language (Gillpatrick, 2020). It also refers to the conversion of text, pictures, video and music into digital format utilizing technologies such as a laptop computer, the internet, mobile devices, a scanner, a digital camera, a projector and a printer which may be played by a computer (Bejinaru, 2019). Digitization perhaps, presented example of new trends in technology, providing schools with electronic security equipments such as weapon detectors, Emergency Notification Systems (ENS), surveillance equipments, alarm systems, communication equipments, electric fence system and smart phones (Abdullahi & Tijani, 2019). These digital tools, which have merely evolved from an exotic possibility into a very essential requirement for the protection of educational institutions, have a wide range of implications for school security management (Gillpatrick, 2020). In public secondary schools in Katsina-Ala Local Government Area of Benue State, Nigeria some of the digital tools that may impact on security management are surveillance cameras and weapon detectors.

Surveillance cameras are those digital tools used to monitor school environment and its activities in order to protect people and properties from physical harm. Bejinaru (2019) maintains that these tools comprised cameras planted in strategic and obscured places to track undesirable actions or behaviour that is likely to disrupt the school climate. McNulty (2021) highlights various types of school surveillance cameras which are used for security management in schools such as hard-wired camera systems, repeater cameras, industrial strength router cameras, high-definition cameras, analog cameras as well as simple video cameras. Sonitrol Pacific (2013) found that surveillance cameras, emergency-only surveillance cameras, night-time recording systems and alarm activated cameras have significant impact on security management in schools. Surveillance cameras are programmed record-keepers that work day and night with mathematical accuracy which have proved to be very useful in suspect-identification after-the-act (Warnick, 2017). They are



extremely efficient tools performing the functions of surrogate guards because employees are incapable of constantly watching other electronic monitors to catch misbehaviour at the time of its occurrence (Walsh & Farrington, 2019). Schneider (2015) explains that electronic cameras can sort images based on time, date, alarm notification, objects, size, location and colour. They have the capacity to count the number of people who move through a door, determine attendance at large events, help analyze pedestrian traffic pattern and read license plates (Walsh & Farrington, 2019). Beside surveillance equipment, another digital tool that could impact on security management is weapon detector.

Weapon is a device designed to inflict injury or death on an opponent. A weapon detector is a device that has the capacity to identify a weapon. Kennedy (2016) observes that weapon detectors are designed to carry out electronic sensitization of instruments, objects or substances that can cause injury on a person or other tangible object(s). There are various categories of weapon detectors used in educational institutions. Fisher Lab (2017) identifies some of these as hand-held concealed weapon detectors, pop-up shelters, floor mat, battery charger cables, protective covers and operational test piece. Mokeyane (2013) found that by installing metal detectors, a school may be shielding many students and teachers from the potential harm of deadly weapon. The presence of weapon detectors in schools tends to ease the concern of parents who are comforted by the knowledge that offensive instruments can easily be detected by school officials if their users seek entry into the school compound (Fisher-lab, 2017). In addition Fasasi and Ingya (2014) found that the installation of weapon detectors in schools help in identifying violent students who may be bold enough to bring offensive weapons to school for whatever reasons. This notwithstanding, the attitude of violent students place school administrators in a better position to counsel or help such troubled students in order to promote teaching and learning (Mokeyane, 2013). The challenge of security management has prompted the researchers to investigate impact of digitization on security management in public secondary schools in Katsina-Ala Local Government Area of Benue State, Nigeria.

Statement of the Problem

The low school attendance, teachers' productivity, students' academic performance, frustration and anxiety by staff and students experience in many public secondary schools in Katsina-Ala Local Government Area of Benue State, Nigeria as observed by the researchers have put a question mark on security management. It seems that the public secondary schools are constantly facing security challenges such as kidnapping, communal crises, Fulani herders and farmers crises, violent attack, students' riots and many form criminal activities in Katsina-Ala Local Government Area of Benue State, Nigeria. Despite the fact that digitization has perhaps, presented example of new trends in technology, providing schools with electronic security equipments such as surveillance equipment like cameras, weapon detectors, Emergency Notification Systems (ENS), alarm systems, communication equipments, electric fence system and smart phones, public secondary schools seem to continue suffering from security challenges.

The researchers observed that surveillance equipment such as cameras are not installed to be constantly watching school environment while weapon detectors also not planted in strategic and obscured places to track undesirable actions or behaviours that are likely to disrupt the school climate in many public secondary schools in Katsina-Ala Local Government Area of Benue State, Nigeria. This seems to heighten security challenges in many public secondary schools in the study area. This situation also appears to continuously threaten peaceful existence of public secondary schools; hence ineffective realization of the broad objectives of secondary education may be the end result. It is based on this background that the study investigated impact of digitization on security management in public secondary schools in Katsina-Ala Local Government Area of Benue State, Nigeria.

Purpose of the Study

The purpose of the study was to investigate impact of digitization on security management in public secondary schools in Katsina-Ala Local Government Area of Benue State, Nigeria. Specifically, the study sought to:

1. determine impact of surveillance cameras on security management in public secondary schools in Katsina-Ala Local Government Area of Benue State, Nigeria.
2. ascertain impact of weapon detectors on security management in public secondary schools in Katsina-Ala Local Government Area of Benue State, Nigeria.



Research Questions

The following research questions guided the study.

1. What is impact of surveillance cameras on security management in public secondary schools in Katsina-Ala Local Government Area of Benue State, Nigeria?
2. What is impact of weapon detectors on security management in public secondary schools in Katsina-Ala Local Government Area of Benue State, Nigeria?

Hypotheses

The study formulated and tested the following hypotheses.

1. Surveillance cameras have no significant impact on security management in public secondary schools in Katsina-Ala Local Government Area of Benue State, Nigeria.
2. Weapon detectors have no significant impact on security management in public secondary schools in Katsina-Ala Local Government Area of Benue State, Nigeria.

Methodology

The study adopted ex post facto survey research designed. The population of the study was all the 560 teachers from 22 public secondary schools in Katsina Local Government Area Benue State, Nigeria. A sample of 203 teachers was randomly selected using purposive random sampling technique. The instrument for data collection was researchers' structured questionnaires titled "Digitization and Security Management Questionnaire (DSMQ)". The instrument was validated by three experts, two experts in Educational Management and one expert in Science and Mathematics Education all in Faculty of Education Benue State University Makurdi Nigeria. The questionnaire was trial tested on 30 teachers in two public secondary schools who were part of the population but not part of sampled population. The Cronbach Alpha was used to determine the reliability of the instruments and the result yielded reliability coefficient of 0.89. This showed that the instrument was reliable enough to achieve its purpose. A four-point likert-scale was used to establish the disparity in the respondents' opinions with a response mode of Strongly Agree (SA)=4; Agree (A)=3; Disagree (D)=2 and Strongly Disagree (SD)=1. The data collected were analyzed using Mean Scores and Standard to answer research questions. Chi-square goodness of fit was used to test hypotheses at 0.05 level of significance.

Research Question 1:

What is impact of surveillance cameras on security management in public secondary schools in Katsina-Ala Local Government Area of Benue State, Nigeria?

Table 1:

Mean and Standard Deviation Scores Impact of Surveillance Cameras on Security Management in Public Secondary Schools in Katsina-Ala Local Government Area of Benue State, Nigeria

S/No	Item Description	N	\bar{X}	SD	Decision
1	Emergency surveillance cameras help in tracking emergency attack by bandits	203	2.96	0.90	Agree
2	Alarm activated cameras can inform administrators about criminal attempt in their schools.	203	2.93	0.88	Agree
3	Simple video cameras help in recording vandalization of school properties.	203	2.98	0.85	Agree
4	High-definition cameras facilitate detection of the time kidnapping occurred in schools.	203	2.94	0.87	Agree
5	Hard wired camera system enables the tracking of people dropping suspicious weapons in schools.	203	3.37	0.97	Agree
Cluster Mean			3.04		Agree

Table 1 indicates the mean response values of items 1-5 as 2.96, 2.93, 2.98, 2.94, 3.37 and a cluster mean of 2.83 with a corresponding standard deviation values of 0.90, 0.88, 0.85, 0.87 and 0.97 respectively. All the mean response values were above the criterion mean of 2.50. This implies that the respondents agreed that emergency surveillance cameras are used track emergency attack, alarm activated cameras inform



administrators about criminal attempt in schools, simple video cameras help in recording vandalization of school properties, high-definition cameras facilitate detection of the time kidnapping occurred in schools and hard wired camera system enables the tracking of people dropping suspicious weapons in school. The cluster Mean value of 3.04 was above the Mean cut-off point of 2.50. This shows impact of surveillance cameras on security management in public secondary schools in Katsina-Ala Local Government Area of Benue State, Nigeria.

Research Question 2:

What is impact of weapon detectors on security management in public secondary schools in Katsina-Ala Local Government Area of Benue State, Nigeria?

Table 2:

Mean and Standard Deviation Scores Impact of Weapon Detectors on Security Management in Public Secondary Schools in Katsina-Ala Local Government Area of Benue State, Nigeria

S/No	Item Description	N	\bar{X}	SD	Decision
6	Hand-held concealed weapon detector helps in identifying people carrying axes in their bags to school.	203	3.04	0.98	Agree
7	Pop-up shelters enhance detection of offensive instrument guns in schools	203	3.03	1.00	Agree
8	Protective cover prevent school members from physical injuries.	203	2.91	0.93	Agree
9	Operational test piece helps in testing to identify those carrying substance that can harm school members.	203	2.98	0.92	Agree
10	Battery charger cables assist in tracking students who may for no reason carry weapons like small knives to school.	203	3.06	0.95	Agree
Cluster Mean			3.00		Agree

Table 2 indicates the mean response values of items 6-10 as 3.04, 3.03, 2.91, 2.98, 3.06 and a cluster mean of 3.00 with a corresponding standard deviation values of 0.98, 1.00, 0.93, 0.92 and 0.95 respectively. All the mean response values are above the criterion mean of 2.50. This implies that the respondents agreed that hand-held concealed weapon detector helps in identifying people carrying axes in their bags to school, pop-up shelters enhance detection of offensive instrument guns in schools, protective cover prevent school members from physical injuries, operational test piece helps in testing to identify those carrying substance that can harm school members and battery charger cables assist in tracking students who may for no reason carry weapons like small knives to school. The cluster Mean value of 3.00 was above the Mean cut-off point of 2.50. This shows impact of weapon detectors on security management in public secondary schools in Katsina-Ala Local Government Area of Benue State, Nigeria.

Hypothesis 1:

Surveillance cameras have no significant impact on security management in public secondary schools in Katsina-Ala Local Government Area of Benue State, Nigeria.

Table 3:

Chi-square Analysis of Impact of Surveillance Cameras on Security Management in Public Secondary Schools in Katsina-Ala Local Government Area of Benue State, Nigeria

Responses	Observed Frequency	Expected Frequency	P-Value	Df	χ^2 Cal.	Decision
SA	73	50.75	0.000	3	29.858 ^a	Sig.
A	105	50.75				
D	16	50.75				
SD	9	50.75				

Table 3 shows Chi-square calculated value of 29.858^a at 3 degree of freedom; P=0.000 is less than 0.05. With this result, the null hypothesis which states that surveillance cameras have no significant impact on security management in public secondary schools in Katsina-Ala Local Government Area of Benue State



Nigeria was rejected. This implies that surveillance cameras have significant impact on security management in public secondary schools in Katsina-Ala Local Government Area of Benue State Nigeria.

Hypothesis 2:

Weapon detectors have no significant impact on security management in public secondary schools in Katsina-Ala Local Government Area of Benue State, Nigeria.

Table 4:

Chi-square Analysis of Impact of Surveillance Cameras on Security Management in Public Secondary Schools in Katsina-Ala Local Government Area of Benue State, Nigeria

Responses	Observed Frequency	Expected Frequency	P-Value	df	χ^2 Cal.	Decision
SA	89	50.75	0.000	3	24.418 ^a	Sig.
A	78	50.75				
D	21	50.75				
SD	15	50.75				

Table 4 shows Chi-square calculated value of 124.418^a at 3 degree of freedom; P=0.000 is less than 0.05. With this result, the null hypothesis which states that weapon detectors have no significant impact on security management in public secondary schools in Katsina-Ala Local Government Area of Benue State Nigeria was rejected. This implies that weapon detectors have significant impact on security management in public secondary schools in Katsina-Ala Local Government Area of Benue State Nigeria.

Discussion of Findings

The findings of the study showed that surveillance cameras have significant impact on security management in public secondary schools in Katsina-Ala Local Government Area of Benue State, Nigeria. This means that emergency surveillance cameras are used track emergency attack, alarm activated cameras inform administrators about criminal attempt in schools, simple video cameras help in recording vandalization of school properties, high-definition cameras facilitate detection of the time kidnapping occurred in schools and hard wired camera system enables the tracking of people dropping suspicious weapons in school. This finding agreed with Sonitrol Pacific (2013) who found that surveillance cameras, emergency-only surveillance cameras, night-time recording systems and alarm activated cameras have significant impact on security management in schools. This finding also aligned with Walsh and Farrington (2019) who maintained that surveillance cameras are extremely efficient tools performing the functions of surrogate guards because employees are incapable of constantly watching other electronic monitors to catch misbehaviour at the time of its occurrence. Schneider (2015) further agreed with this finding that electronic cameras can sort images based on time, date, alarm notification, objects, size, location and colour.

The findings also showed that weapon detectors have significant impact on security management in public secondary schools in Katsina-Ala Local Government Area of Benue State, Nigeria. This means that hand-held concealed weapon detector helps in identifying people carrying axes in their bags to school, pop-up shelters enhance detection of offensive instrument guns in schools, protective cover prevent school members from physical injuries, operational test piece helps in testing to identify those carrying substance that can harm school members and battery charger cables assist in tracking students who may for no reason carry weapons like small knives to school. This finding agreed with Mokeyane (2013) who found that by installing metal detectors, a school can shield many students and teachers from the potential harm of deadly weapon. Fisher-lab (2017) corroborated this finding by stating that the presence of weapon detectors in schools tends to ease the concern of parents who are comforted by the knowledge that offensive instruments can easily be detected by school officials if their users seek entry into the school compound. The finding was further supported by Fasasi and Ingya (2014) who found that the installation of weapon detectors in schools help in identifying violent students who may be bold enough to bring offensive weapons to school for whatever reasons.

Conclusion

Security management has become an evitable task of school administrators given the demand for safety of lives and properties in school around the world. Best security management approaches like integration of digitization is necessary in enhancing security management in schools especially public



secondary schools. The study concludes that digitization has significant impact on security management in public secondary schools in Katsina-Ala Local Government Area of Benue State, Nigeria. This is because the use of surveillance cameras and weapon detectors has shown to improve the way and manner in which security can be managed in public secondary schools.

Recommendations

Based on the findings of the study, it was recommended that:

1. the management of public secondary schools in Katsina-Ala Local Government Area of Benue State, Nigeria should ensure full integration of digitization in security management. This could be achieved through the use of modern electronic equipments such as surveillance cameras in form of emergency surveillance cameras, simple video cameras and high-definition cameras to monitor and detect security threatening activities in order to safeguard the lives and properties of schools towards achieving school goals and objectives.
2. all public secondary schools in Katsina-Ala Local Government Area of Benue State, Nigeria should acquire vital weapon detectors such as hand-held concealed weapon detector, pop-shelter, protective cover, operational test piece and battery charger cables in order to protect schools against criminal intrusion and violence that may threaten peaceful existence of schools.

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