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# PROCEEDINGS

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MULTIDISCIPLINARY APPROACH.

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## SECONDARY SCHOOL ADMINISTRATORS' AWARENESS AND PREFERENCE OF USING SMART BUILDING'S SECURITY FEATURES FOR SAFE SCHOOL INITIATIVE MANAGEMENT IN MINNA, NIGERIA

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### Abstract

Effective security of lives and properties in an educational institution is an important task that can affect the effectiveness and relevance of service delivery. This study investigated secondary school administrators' awareness and preference level of using smart building's security features for safe school initiative management in Minna, Nigeria. The intension of this research is to investigate the extent of secondary school administrators' level of familiarity and preference for adopting smart building security features for school safety management in Nigeria. To achieve the aim of the research, questionnaires were served to 20 registered and regulated secondary schools in Minna. The targeted respondents were drawn from both public and private schools with two school administrators selected per school for the best opinion coverage making a total of 40 questionnaires administered in all. The process of selecting the schools follows a systematic procedure (Balloting) which supports random sampling of the schools in the targeted geographical area of the research. The data obtained were analysed based on frequency distribution and percentages rating. The result obtained shows that 35% of the respondents agreed that, they have very high awareness level of using video surveillance also known as Closed Circuit Television (CCTV) as smart building security feature for safe school initiative management while 22.5% of the respondents agreed that, they have very low awareness level about the use of CCTV for the same purpose. In addition, the result analysis also shows that the most preferred smart building security features for safe school initiative management is the Uninterrupted Power Supply (UPS) system with 47.5% of the respondents rating it very high. On the contrary, 17.5% of the respondents agreed that, they have a very low preference level about the use of UPS system for the same aim. It is therefore recommended that more efforts should be deployed towards ensuring uninterrupted power supply in secondary schools for effective safe school initiative management by the school administrators since most of the highly aware smart building security features by the respondents cannot function efficiently without constant power supply.

**Keywords:** Smart building, Smart building Security features, School Administrators, Safe school initiative, secondary school

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## **Introduction**

The security of life and assets of people in a given country is one of the primary duties of the government because of its importance to national growth and advancement in all areas of life. The purpose of a secured environment is to guarantee safety of lives and properties as well as taking safety measures against an intending danger or violent attacks. Security can be defined as the absence of terrorisations in all forms which may be political, religious, economic or socio-cultural. Edison (2018) explained that, one of the primary necessities of human beings and their environments is security. Similarly, Joseph (2014) stated that, security of lives and properties is an important all-encompassing issue that is paramount to any group of people living in a community or country. In addition, Joseph observed that, security can also mean a condition of which there is absence of danger from violent attack, political, economic and socio-cultural hopelessness with the intension of allowing community to develop according to their own capability. Similarly, many other researchers such as Orpinas (2003), Eket (2019), Wulf (2006), Home and Staniszewsk (2003), Deyer and Osher (2000) have also defined security as the level of protection against danger, damage or loss of lives and properties. In order to emphasise the recognition attached to the security of lives and properties in Nigeria, the Federal Republic of Nigeria constitution of 1999, Section 14 (1) (b) documents that, the people's security and welfare shall be the main drive of the government.

## **Security Challenge in Nigerian Schools**

Similar to the current security report all over the world, Nigeria as a country is not totally immune to some security challenges. The country has registered an increased level of insecurity recently targeted at both private and public buildings such as private houses, hotels, places of worships, educational institutions and other religious buildings such as church and mosque buildings (Ushe, 2012). Nowadays, school terrorism, bombing, kidnapping, rape and violent attacks are the major challenges of insecurity in several educational institutions in Nigeria. Consequently, the level of insecurity in secondary schools in Nigeria is alarming. Sampson and Onuoha (2011) defined terrorism to be a premeditated threat or the use of violence attack by a group or an individual to cause distress, destruction, fear or death particularly against vulnerable targets and their properties or private and public infrastructures with the aim of compelling the government to respond to the requests and expectations of the group or an individual orchestrating such violent attacks. Secondary school violent attacks by terrorists have increased drastically in northern Nigeria necessitating the high level of insecurity in schools in that part of the country. In Chibok, a community close to the border between Adamawa and Bornu states of Nigeria, it was reported that gunmen attacked and abducted well above 200 senior secondary school girls from the school environment (Ndahi, 2014). This kind of school security threat is of serious concern and how it can always be prevented. In literature, a work that investigated insecurity issues amongst student was presented by

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Akintokumbo (2011) in Abuja, the Federal Capital Territory (FCT) which is the capital city of Nigeria. It was reported then that there were four major violent attacks by terrorist between 2010 and 2011. Similarly, in Yobe State, Ndahi (2014) in his work reported that, several staff and students of Federal Government College, Buni-Yadi in Yobe State were killed while others were kidnapped by gunmen suspected to be from the Boko Haram sect. The gunmen burnt several structures within the school and many dead bodies of some of the students were completely burnt. With this act, it is clear that secondary schools in Nigeria are now soft targets by terrorist in Nigeria. In order to lessen the rate of insecurity in Nigeria, the Federal Government Nigeria (FGN) embarked on proscription of terrorism by granting the Anti-Terrorism law of 2011. According to (Ewetan, O. O. and Urhie E., 2014), the measures to combat the act of terrorism in the country include the installation of computer based video surveillance otherwise known as Closed Circuit Television (CCTV) cameras in some selected parts of the country, enhancement of environmental surveillance, prompt investigation and prosecution of banditry related crimes, heightening of security intelligent gathering across the country to frustrate any potential attack, provision of security equipment and facilities to security formations and adequate security report broadcasting on various mass media platforms. In addition to other measures, FGN keyed in and launched an initiative tagged Safe School Initiative (SSI). Based on Idris (2018) and Adebayo (2017) research findings, the SSI was launched in May, 2014 by FGN to protect schools in Nigeria from bandit attacks that come in form of hostage taking, kidnapping, rape or outright killing by the insurgents. All School administrators and their management staff are expected to make satisfactory use of both material and human resources. The essence of this for all administrators is to allow them plan, organize, coordinate and drive an effective policy framework based on the launched SSI management of their school.

Current studies have revealed that there are several number of ways school insecurities has been mitigated ranging from engaging security personnel to provision of more security equipment to help in timely detection and control of criminal plans (Coaffee, 2016). Some of these measures include the use of boundary walls with barbed wire installed on them and other physical architectural structures such as simple and cost-effective systems for the protection of the school children, staff and school properties from violent attacks.

## **Smart Buildings and its Security Features**

The technology of intelligent buildings otherwise known as smart buildings has evolved over the years with the primary target of using them to providing the needs of their occupants. The various system components that form the smart building edifice can also be remotely deployed for the provision of comfort, aesthetic, security, etc. The focus of this study is to unveil the usefulness of smart building as a tool that is capable for providing security of lives and properties. Smart buildings have security features among other features that are mostly explored to combat security issues when the need arises. As

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presented by Adedayo, Ailoyafen and Adebayo (2017), physical security procedures are mostly convenient in reducing the risks of physical attacks and direct contacts against any facility. In this respect smart building for security purpose can be of great help. The concern for smart building has been motivated largely by technological development and the drive for environmental safety, sustainable environment and energy efficiency (Sinopolis, 2010). Therefore, need to integrate smart security features in real estate advancement is very importance especially in schools were security is currently a serious issue. Intelligent buildings are structured to guarantee security of the users and properties among other usefulness (Buckman *et al.*, 2014; Sinopolis, 2010). Nevertheless, the barriers to advancement and investment of intelligent building in Nigeria and other developing nations are many. The most serious constraint to intelligent building research is obviously the knowledge gap. Till date, studies conducted on smart building outside the advanced economies on are very few. This makes government, developers, None Governmental Organisations (NGOs) and investors hesitant in the desire and formulation of guidelines relation to the advancement of smart buildings. Based on the foregoing discussion arises the need to investigate the level of school administrators' awareness and preference for smart building security features is important. Consequently, this study seeks to fill this gap in literature by investigating the secondary school administrators' awareness and preference level for smart building security features for SSI management taking secondary schools in Minna, Nigeria as a case study. The outcome of the research is expected to assist investors, developers, managers and investment advisers, other stakeholders and government in the planning and management of smart buildings for safe school initiative policies and implementation. The study is also expected to provide a lead way information to foreign investors aiming Nigeria and other developing economies. The research is therefore vital, more so that the whole world has become a global village and school violent attacks are on the rise.

## **Aim and Objectives of the Study**

The aim of this study is to investigate the awareness and preference level of secondary school administrators about the use of smart building security features for school security management in Nigeria. The objectives of the work are to:

1. To determine school administrators' awareness level of using smart building security features for safe school initiative management in some selected schools in Minna, Nigeria.
2. To investigate school administrators' preference level of using smart building security features for safe school initiative management in some selected schools in Minna, Nigeria..

## **Research Questions**

1. What is the school administrators' awareness level of using smart building security features for safe school initiative management in some selected schools in Minna, Nigeria?

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2. What is the school administrators' preference level of using smart building security features for safe school initiative management in some selected schools in Minna, Nigeria?

## Research Methodology

This study used descriptive survey design. It critically examined school administrator's awareness and perception of using security features of smart building for secondary schools' SSI management in Minna, Nigeria. Twenty (20) schools of which some were private and other were public were selected randomly through balloting method from government approved schools in Minna. Forty (40) school administrators were sampled in all after which frequency and percentage analysis was used to evaluate the data collected. The instrument used for data collection in this research study was questionnaire and observation. The questionnaire consists of two parts: The first part and the second part. The first part captured the biodata of the respondents while the second part were designed for the respondent to indicate their aware and preference level respectively of smart building security features for safe school initiative management of their schools. The twenty (20) schools selected were all visited to distribute the questionnaire. All the administrators targeted (Two administrators per school) cooperated in the act of administering the questionnaire and they all equally returned the questionnaires. All respondents were allowed to respond independently and the completed questionnaire were collected afterwards for analysis.

## Results and Discussions

The biodata information statistics of the respondents is presented in Table 1. This first part of the questionnaire covers the respondent's gender, school category, administrative post, years of experience, academic qualification, professional certification and staff strength. The qualifications and years of experience of the school administrators are factors to determine the relevancy of the respondents to school environment in terms of school administration and policy enforcement. The biodata collected gave an overall insight into the respondents' level of awareness and preference using percentage analysis towards the use of smart building security features.

Table 1: Respondents' Biodata Statistics

S/No	ITEMS	NUMBER S	S/No	ITEMS	NUMBER S	S/No	ITEMS	NUMBER S
1	Gender:		4	Year of Experience:		6	Professional Certification:	
	Male	28		1-5	4		Yes	36
	Female	12		6-10	7		No	4
2	School Category:		11-15		11	7	Staff Strength:	
	Public	18		16-20			2	1-49

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	Private	22		Above 20	16		50-249	27
3	Administrative Post:		5	Academic Qualification			250 and above	5
	Proprietor/Proprietres	0		OND Certificate	1			
	Director	1		HND Certificate	0			
	Principal	9		PGD Certificate	5			
	Vice Principal	25		First Degree Certificate	23			
	Head Teacher	2		Master Degree	11			
	Assistant Head Teacher	1		Ph.D Certificate	0			
	Others	2						

The results of the respondents' awareness and preference level were drawn from the second part of the questionnaire. The results are presented in Table 2 and Table 3 respectively.

Table 2: Respondents' Awareness Level Rating for Smart Building security Features

S/N	Smart Building Security Features	Awareness Level									
		5 (Very high)		4 (High)		3 Moderate		2 (Low)		1 (Very low)	
		N	%	N	%	N	%	N	%	N	%
1	Video Surveillance or Close Circuit Television (CCTV)	14	35	3	7.5	9	22.5	5	12.5	9	22.5
2	Intelligent Intrusion detection system	6	15	1	2.5	9	22.5	7	17.5	17	42.5
3	Smart Fire detection system	2	5	6	15	11	27.5	9	22.5	12	30
4	Intelligent thermostat system (Smart temperature detector)	4	10	5	12.5	5	12.5	11	27.5	15	37.5
5	WiFi (Internet access)	12	30	6	15	9	22.5	3	7.5	10	25
6	Intelligent lighting system	4	10	10	25	8	20	6	15	12	30
7	Automatic access control system	3	7.5	7	17.5	7	17.5	9	22.5	14	35
8	Uninterrupted power supply system	13	32.5	8	20	5	12.5	1	2.5	13	32.5
9	Intercom system	8	20	5	12.5	8	20	5	12.5	14	35
10	In-building cell phone	5	12.5	5	12.5	6	15	11	27.5	13	32.5

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11	Access key smart tracker	3	7.5	5	12.5	8	20	10	25	14	35
12	Audio visual system	6	15	14	35	7	17.5	4	10	9	22.5
13	Intelligent space usage meter	1	2.5	6	15	3	7.5	9	22.5	21	52.5
14	Smart locks	9	22.5	7	17.5	3	7.5	5	12.5	16	40
15	Digital signage (LCD or Plasma display)	12	30	9	22.5	3	7.5	4	10	12	30
16	Specify any other smart building security feature(s) you wish to add _____	-	-	-	-	-	-	-	-	-	-

The response rating of the respondents is based on the following: 5 = Very high, 4 = High, 3 = Moderate, 2 = Low and 1 = Very low.

Table 3: Respondents' Preference Level Rating for Smart Building security Features

S/N	Smart Building Security Features	Preference Level									
		5 (Very high)		4 (High)		3 (Moderate)		2 (Low)		1 (Very low)	
		No	%	No	%	No	%	No	%	No	%
1	Video Surveillance or Close Circuit Television (CCTV)	18	45	6	15	6	15	2	5	8	20
2	Intelligent Intrusion detection system	11	27.5	7	17.5	9	22.5	2	5	11	27.5
3	Smart Fire detection system	15	37.5	8	20	2	5	4	10	11	27.5
4	Intelligent thermostat system (Smart temperature detector)	8	20	11	27.5	11	27.5	5	12.5	5	12.5
5	WiFi (Internet access)	16	40	9	22.5	5	12.5	3	7.5	7	17.5
6	Intelligent lighting system	15	37.5	6	15	11	27.5	4	10	4	10
7	Automatic access control system	12	30	12	30	9	22.5	3	7.5	4	10
8	Uninterrupted power supply system	19	47.5	9	22.5	5	12.5	0	0	7	17.5
9	Intercom system	14	35	7	17.5	6	15	6	15	7	17.5
10	In-building cell phone	14	35	8	20	9	22.5	2	5	7	17.5
11	Access key smart tracker	12	30	7	17.5	8	20	3	7.5	10	25
12	Audio visual system	11	27.5	12	30	9	22.5	2	5	6	15
13	Intelligent space usage meter	9	22.5	7	17.5	13	32.5	6	15	5	12.5
14	Smart locks	13	32.5	10	25	8	20	1	2.5	8	20

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4. Seminars and workshops for students and staff beside that of the administrators at the beginning of the term should be encouraged to prepare them for any school attack eventuality.
5. Efforts should be made by the government to inject more fund into education for massive deployment of building technology to combat terrorism in schools.

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