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Achieving Cyber Safety in Junior Secondary Schools in Rivers State, Nigeria

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Abstract:
The study investigated Achieving Cyber Safety in Junior Secondary Schools in Rivers State. Three Objectives, three research questions and three null hypotheses guided the study. A descriptive survey design was adopted. Population of the study was 815 teachers of public junior secondary schools in Obio-Akpor Local government area of Rivers State. A simple random sampling technique was used to select 182 males out of 374 and 221 females out of 441 representing 50%. Instrument used for data collection was a 17 item questionnaire tagged –Achieving Cyber Safety Questionnaire (ACSQ) with a reliability index of 0.89, was used for data collection. Reliability of the questionnaire was determined using Cronbach Alpha. Research questions were answered using mean and hypotheses tested using z-test. It was found that there is a low awareness of problems associated with cyber usage by students in junior secondary schools among the educators. Also, there is no cyber safety strategies employed for the students. The study concluded that the educational system encourages learners to get involved in the cyber space, but cannot continue to overlook the risks involved and allow children to waste their future in the internet. It was however recommended among others that teachers should be good role models by using digital media in the way that they want the students under their care to use it now and in future and parents should also be involved in checking their children activities online.

Keywords: Junior Secondary Schools (J.S.S.) Rivers State (RS) and Cyber Safety (CS)

1. Introduction

The basic reason why people get involved in the use of the cyberspace is for communication and quest for knowledge. Communication is a universal activity which people engage in, to achieve their interests and solve problems. Communication channels employed by man over time have evolved from the use of messengers and signal in the olden days to the use of the radio, television and the print media. However, in this age of Information and Communication Technology (ICT) man is able to carry out communication just by the touch or click of a button using mobile technology such as mobile phones, ipads, tablets, internet, intranet, voice over internet with aid of some application such as youtube, WhatsApp, skype, imo, google mail and yahoo mail; one major benefit of ICT being that messages can be shared with greater ease, involving a more personal interaction, and within a very short time.

Nwokoro (2016) pointed out that communication is a critical factor in the development of a nation, with one major target of developing children and young people who are the future leaders in terms of technology usage.These populations which can be said to be the most active group of the society are exposed to the use of electronic devices in promoting their social and educational activities. Once there is a network connection between electronics, it is said to be a cyber or cyber space also seen as an internet. While the internet can be a good tool for learning and personal study (aside from its social benefits), it also comes with risks. Predators such as paedophiles and cyber criminals may pose as new friends or acquaintance to exchange personal information from children. According to Rijnetu (2019), technology has evolved beyond control and has improved many aspects of lives and kids knowledge base. However, there is an increasing danger for children to become easy preys for malicious actors and sexual predators trying to take advantage of their lack of knowledge. Activities of safety concern for students on the cyber space include exposure to illegal or inappropriate materials, stranger danger, identity theft, invasion of privacy, harassment and cyberbullying.

Many young people who get involved in several activities on the internet have encountered problems, such as cyberbullying. Smath, Mahdari, Cavalhs, Fisher and Rusell (2008) defined cyberbullying as an aggressive, intentional act carried out by a group or individual, using electronic forms of contact, repeatedly and over time. Cyberbulling occurs sharing messages on social network sites, email, downloading books from the internet, making use of electronic booksand electronic materials, video calls, video games, website browsing and in chartroom usage. Due to these enormous activities that take place, the cyber system needs to be safe and secured for better communication and to protect the users.

Cyberbullying which always occurs on social media involves sending messages that are intimidating or threatening to the receiver. This has become common in recent times among teenagers as they get involved online in social networking profiles, video and image sharing, blogs, messaging, emails and texting. Cyberbullying can be fuelled out of pear pressure coupled with the 'safe' physical distance that exists between the one bullying and the victim, and the reluctance of kids to report cyberbullying. It takes the form of spreading harmful statements that can damage an individual's reputation; attacking, filming, taking pictures, and distributing same online; deliberately excluding an individual from an online group, and so on. The consequences of cyberbullying are dire on teenagers, according to Willard and Harris (2019) it may lead to emotional distress, depression, social violence and school avoidance. Cyberbullied kids may also experience anxiety, fear and low self-esteem and cause them to struggle academically with short and long term psychological and societal effects. Hurley (2019) found out that middle schools reported the highest rate of bullying of at least once a week, involving about 1 in 4 teens (Hirsh, 2014).

Teachers as parents in school need to arm students with rules and guidelines to help keep them safe in the cyber space. The recently exposed blue whale game was said to have led to the deaths of many students succumbing to the pressure of cyber bullies; thus, the need for cyber safety. Cyber safety for students involves making sure that students are safe online as they use the internet. According to Panda Security (2018) teachers must find a balance between ensuring online safety and allowing students to explore the resources the internet has to offer, especially since many educational programs and homework assignments rely on the internet. There are internet safety laws which help to protect children when they are online. Some online tools and soft wares are also available to control kids' access to adult materials or to monitor and track online activity. The law regulating Children Online Privacy Protection Act (COPPA) established in 2000 and updated in 2013 requires parental consent for the collection or use of any personal information of young website users. In like manner there is need for students to be aware of cyber safety topics such as internet surfing, social networking, cyberbullying, child pornography, sexual image or message, cyber identify theft and online privacy because it is not all sites that should be visited especially the ones that are supported by Hyper Text Transfer Protocol Secure (HTTPS)in the Uniform Resource Location (URL). Any site that does not have a trusted link should be suspected because the link can be redirected to another page and by that singular act, a lot of information might be given out. Another instance is the act of filling personal data online; which could be used against the person visiting the site. As a result of limited knowledge on this matter backdrop among adolescence, there is need for principals and teachers to be aware of these risks in cyber space and ensure the right security and create awareness among students.

Principals and teachers roles in junior secondary schools are enormous; they are the managers that help to carry out the administrative functions in schools (Abraham, 2003; & Igwe 2015). In other words, principals and teachers act in the capacity of in-loco-parentis to these children, making sure that the right things are done mostly in this jet age where Information and Communication Technology (ICT) is the business of the day. There is no doubt that the school system especially in Rivers state has embraced the use of ICTsas most of the public junior secondary schoolsnow haveICT laboratories with computer studies included in the curriculum. Today's children are digital natives and can use digital technologies without fear or trembling, thus, there is need to guide them towards achieving their academic goals with the use of ICTs.

The school administrators always ensure that students are on their toes with their academic endeavours, engaging them with assessment tests or take home assignments on various subjects. This process challenges the youth to find out ways to solve their tasks and one of the quickest means of doing this is with the use of digital technologies. Therefore, it is of great essence that principals and teachers guide students on their use of the cyber space to ensure cyber safety Barros and Lazarek (2018) stressed the need for school administrators to make out time to educate students on cyber education because if that is not done, young children are at risk as they may or may not when be mindful of the dangers on cyber space. Hence, it is against these backdrop that the researchers are anxious to investigate the roles of principals and teachers in achieving cyber safety in junior secondary schools in Rivers state.

1.1. Statement of Problem

Cyber is a Greek word used to describe the computer and information age. A cyber system makes use of a cyber space; an interactive domain of digital networks useful for communication, storing or modifying information. Hence, the cyber space is associated with activities such as sharing messages, downloading books, emails, video calls and video games. Students in recent times have become very attracted to exploring the cyber space, not only for its social benefits but as a quick source for their personal study for solving academic problems. Also, teachers encourage their students to make researches and do homework with help from the internet. While the benefits of exposing young teenagers to the use of electronic devices and the internet cannot be overemphasized, one cannot deny that children have become exposed to great dangers. Serious cases of safety concern such as invasion of identify, cyberbulling, information hijack, online fraud and exposure to inappropriate materials have increased especially among cyber friendly youths. These negative vices have resulted in moral decadence, violence, distraction from academic work, emotional distress and sometimes death of victims. Principals and teachers must ensure cyber safety for students while they surf the web so as to avail themselves of the enormous help which the internet offers in the pursuit for knowledge. However, it appears that the issue of cyber safety has not been properly addressed in schools in Nigeria. The researcher wondered if school administrators are aware of the danger in cyber usage and if they are what roles do they play in achieving cyber safety. Therefore, the driving question of this research work can be summed up as, to what extent are principals and teachers ensuring cyber safety among students in junior secondary schools in Rivers State?

1.2. Aim and Objectives

The main purpose of this study is to assess the extent to which principals and teachers ensure cyber safety for students in junior secondary schools in Rivers State. The study sought to:

- ascertain the extent of awareness of problems associated with cyber usage by students in junior secondary schools in Rivers State;
- ascertain the level of cyber safety strategies employed for students in junior secondary schools in Rivers State;
- determine government involvement in ensuring cyber safety for students in junior secondary schools in Rivers State.

1.3. Research Questions

The following research questions were formulated in investigating the problem:

- What is the extent of awareness of problems associated with cyber usage by students in junior secondary schools in Rivers State?
- What is the level of cyber safety strategies employed for students in junior secondary schools in Rivers State?
- What is the extent of government involvement in ensuring cyber safety for students in junior secondary schools in Rivers State?

1.4. Hypotheses

The study tested the following hypotheses:

- There is no significant difference between the mean responses of male and female teachers on the extent of awareness of problems associated with cyber usage by students in junior secondary schools in Rivers State.
- There is no significant difference between the mean responses of male and female teachers on the level of cyber safety strategies employed for students in junior secondary schools in Rivers State.
- There is no significant difference between the mean responses of male and female teachers on the extent of government involvement in ensuring cyber safety for students in junior secondary schools in Rivers State.

2. Methodology

The study adopted a descriptive survey design. Population of the study was 815 teachers of public junior secondary schools in Obio-Akpor Local government area of Rivers State Nigeria. A simple random sampling technique was used to select 182 males out of 374 and 221 females out of representing 50%. Instrument used for data collection was a 17 item questionnaire tagged –achieving Cyber Safety Questionnaire (ACSQ). It was patterned after the Likert (Modified) response scale with four options (Very High Extent, High Extent, Low Extent, Very Low Extent). The instrument was tested for reliability using Cronbach Alpha to establish an index of 0.89. Mean set was used to answer the research questions using a criterion mean of 2.50, and z-test was used in testing the Hypotheses. Mean values of 2.50 and above were considered high while mean values less that 2.50 was considered low.

3. Results

- Research Question 1: What is the extent of awareness of problems associated with cyber usage by students in junior secondary schools in Rivers State?

	The extent of awareness of problems associated with cyber usage by students in junior secondary schools	Male Teachers			Female Teachers		
		$\bar{X}$	SD	Decision	$\bar{X}$	SD	Decision
1	Educators have adequate knowledge of cyber safety rules	1.95	1.11	Low extent	2.00	0.94	Low extent
2	Teachers can identify students who are cyber bullied	2.00	0.94	Low extent	1.93	0.84	Low extent
3	Students share their experiences on the internet with teachers	3.22	1.81	High extent	2.88	1.25	High extent
4	Students can report uncomfortable activities to teachers	1.80	1.20	Low extent	1.90	1.10	Low extent
5	Teachers are educated on adequate use of web applications and online programs	1.50	0.69	Low extent	1.40	0.61	Low extent
6	Teachers are aware of the risks of being online	2.58	1.18	High extent	2.60	0.99	High extent
	Aggregate mean	2.18		Low	2.12		Low

Table 1: Mean and Standard Deviation of Teachers' Opinion on the Extent of Awareness of Problems Associated with Cyber Usage by Students in Junior Secondary Schools in Rivers State

In table 1, items 1, 2, 4 and 5 portray low mean scores; which mean that educators do not have adequate knowledge of safety rules, they cannot identify students who are cyber bullied, students cannot report uncomfortable activities to

teachers and teachers are not educated on the use of web application and online programs. On the other hand items 3 and 6 reveal that students share their experiences on the internet with teachers who are also aware on the risks of being online. The aggregate low mean scores indicate that there is a low awareness of problems associated with cyber usage by students in junior secondary schools among the teachers in Rivers State.

- Research Question 2: What is the level of cyber safety strategies employed for students in junior secondary schools in Rivers State?

	The level of cyber safety strategies employed for students in junior secondary schools	Male Teachers			Female Teachers		
		$\bar{X}$	SD	Decision	$\bar{X}$	SD	Decision
7	There are efforts to measure the active presence of students using cyber space	1.77	0.94	Low Level	0.62	0.03	Low Level
8	Awareness campaign of virus attack in the form of sexual images, message or instant messages, video clips, emails, chartroom and website	2.00	1.27	Low Level	2.10	1.90	Low Level
9	Training for students on cyber security	2.43	1.18	Low Level	2.14	1.43	Low Level
10	Teachers limit and control students access on the internet	2.20	0.86	Low Level	3.21	2.10	Low Level
11	Teachers inform students of internet etiquette and responsible online behaviour	1.50	0.64	Low Level	2.21	1.47	Low Level
12	Students are taught that their personal information should always be kept private online	1.80	0.11	Low Level	2.36	1.05	Low Level
	Aggregate mean	1.95		Low	2.11		Low

Table 2: Mean and Standard Deviation of Teachers' Opinion on the Level of Cyber Safety
Strategies Employed for Students in Junior Secondary Schools in Rivers State

In table 2, responses on all the assessed items were low. This is an indication that there are no efforts to measure the active presence of students using cyber space in schools, there are no awareness campaigns of virus attack in the form of sexual images, message or instant messages, video clips, emails, chartroom and website with no training programmes for students on cyber security. Teachersn either limit nor control students' access on the internet nor inform students of internet etiquette and responsible online behaviour. Also, students are not taught that their personal information should always be kept private online.

- Research Question 3: What is the extent of government involvement in ensuring cyber safety for students in junior secondary schools in Rivers State?

	The extent of government involvement in ensuring cyber safety for students in junior secondary schools	Male Teachers			Female Teachers		
		$\bar{X}$	SD	Decision	$\bar{X}$	SD	Decision
13	There are equipped computer laboratory in schools	3.20	1.57	High extent	3.21	2.12	High extent
14	There are internet connections for students to browse in schools	2.00	0.94	Low extent	1.93	0.84	Low extent
15	There are government policies that protect young people if cyber incidents take place	3.22	1.81	High extent	2.88	1.25	High extent
16	Training and retraining exercises are provided to improve teachers cyber space usage	2.30	1.11	Low extent	2.14	1.40	Low extent
17	There is periodic maintenance of computer facilities in schools	1.53	0.80	Low extent	1.50	0.10	Low extent
	Aggregate mean	2.04		Low	1.94		Low

Table 3: Mean and Standard Deviation of Teachers' Opinion on the Extent of Government
Involvement in Ensuring Cyber Safety for Students in Junior Secondary Schools in Rivers State

In table 3, the mean of items 14, 16 and 17 indicated that computer systems in junior secondary schools are not connected to internet to enable students browse within the school environment. There are no training and retraining exercises provided to improve teachers' cyber space usage and a lack of periodic maintenance of computer facilities in schools. Although, items 13 and 15 show that there are equipped computer laboratories in schools and there are existing

government policies that protect young people if cyber incidents take place. The aggregate mean scores for both groups of respondents still indicate a low level of involvement of the government in ensuring cyber safety for students in junior secondary schools.

- Hypothesis 1: There is no significant difference between the mean responses of male and female teachers on the extent of awareness of problems associated with cyber usage by students in junior secondary schools in Rivers State.

Variables	N	$\bar{\bar{X}}$	SD	Df	Cal-z-Value	Critical z-value	Decision
Male Teachers'	30	25.0729	7.64778	98	1.709	±1.96	HO1 Accepted
Female Teachers'	70	32.7947	3.94177				

Table 4: Means, Standard Deviation and Z-Statistics of Male and Female Teachers' Opinion on
The Extent of Awareness of Problems Associated with Cyber Usage by Students in Junior Secondary Schools in Rivers State

The data in table 4 above shows that the Z-calculated value of 1.709is less than the Z-critical value of 1.96 at 0.05 level of significance with 98 degree of freedom. The null hypothesis (H_{01}) was accepted. This means that there is no significant difference between the mean responses of male and female teachers on the extent of awareness of problems associated with cyber usage by students in junior secondary school in Rivers State.

- Hypothesis 2: There is no significant difference between the mean responses of male and female teachers' on the level of cyber safety strategies employed for students in junior secondary school in Rivers State.

Variables	N	$\bar{\bar{X}}$	SD	Df	Cal-z-Value	Critical z-value	Decision
Male Teachers'	25	26.304	8.1700	98	0.443	±1.96	HO2 Accepted
Female Teachers'	75	25.800	6.5331				

Table 5: Means, Standard Deviation and Z-Statistics of Male and Female Teachers' Opinion on the
Level of Cyber Safety Strategies Employed For Students in Junior Secondary School in Rivers State

The data in table 5 above shows that the z-calculated value of 0.443 is less than z-critical value of 1.96 at 0.05 level of significance with 98 degree of freedom. The null hypothesis (H_{02}) was accepted. This means that there is no significant difference between the mean responses of male and female teachers on the level of cyber safety strategies employed for students in junior secondary schools in Rivers State.

- Hypothesis 3: There is no significant difference between the mean responses of male and female teachers' on the extent of government involvement in ensuring cyber safety for students in junior secondary schools in Rivers State.

Variables	N	$\bar{\bar{X}}$	SD	Df	Cal-z-Value	Critical z-value	Decision
Male Teachers'	31	33.3220	6.5331	98	-1.220	±1.96	HO3 Accepted
Female Teachers'	69	33.9663	8.1700				

Table 6: Means, Standard Deviation and Z-Statistics of Male and Female Teachers' Opinion on the Extent of Government
Involvement in Ensuring Cyber Safety for Students in Junior Secondary Schools in Rivers State

The data in table 6 above shows that the z-calculated value of -1.220 is less than z-critical value of 1.96 at 0.05 level of significance with 98 degree of freedom. The null hypothesis (H_{03}) was accepted. This means that there is no significant difference between the mean responses of male and female teachers in ensuring cyber safety for students in junior secondary schools in Rivers State.

4. Discussion of Findings

The analysis in table 1 shows that respondents are in agreement that students share their experiences on the internet with teachers and teachers are aware of the risks of being online. On the other hand, educators do not have adequate knowledge of cyber safety rules, they cannot identify students who are cyber bullied, students cannot report uncomfortable activities to teachers and teachers are not educated on adequate use of web applications and online programs. This result indicates that educators are yet to brace up to the reality of problems associated with the use of the internet and the need for safety. It is surprising that principals and teachers who encourage students to surf the web for academic purposes do not have sufficient knowledge on the issue of cyber safety. This is worrisome and requires that educators wake up to learning more about the internet as ignorance cannot be an excuse why the future of students under

their care should be mortgaged. The finding of this study shows no significant difference between the mean responses on the extent of awareness of problems associated with cyber usage by students in junior secondary schools in Rivers State.

The research findings on table 2 reveal that respondents are all negatively inclined to the following statements as it concerns the level of; efforts to measure the active presence of students using cyber space; awareness campaign of virus attack in the form of sexual images, message or instant messages, video clips, emails, chartroom and website; training for students on cyber security; teachers ability to limit and control students access on the internet; teachers inform students of internet etiquette and responsible online behaviour; students are taught that their personal information should always be kept private online. This result indicates the absence of any strategy employed to ensure cyber safety for students in junior secondary schools in Rivers State? The study isin line with the findings of Okoiye, Anayochi and Onah (2015) that adolescents should be taught moral instructions in school as it would help them to be of good character and develop the ability to negotiate relationships positively in the society; this method will change their orientation in usage of cyber space. Also, Olumide, Adams and Amodu (2015) believes that intervention programs must be instituted for victims as well as frequent users of the internet to curb the problem of cyber harassment / cyber bullying.

Table 3 reveals respondents agreement that there are equipped computer laboratories in schools and the existence of government policies that protect young people if cyber incidents take place. Notwithstanding, they are also unanimously of the opinion that there are no internet connections for students to browse in schools, no training or retraining exercises provided to improve teachers cyber space usage and no periodic maintenance of computer facilities in schools. This result simply means that government is not fully involved in ensuring cyber safety for students in junior secondary schools. This result is not expected as it will not be an easy task to control students use of the cyber space to ensure safety if they cannot browse the internet using school facilities where teachers can monitor them. The findings of this study agree with that of Olumide, Adams and Amodu (2015) that students have internet access in their personal mobile phones.

5. Conclusion

The use of information and communication technologies in education enhances learning and has enabled the fast retrieval of information in vast numbers as has never been before. It is obvious that teenagers are attached to the use of technological devices to meet their social and academic needs. As useful as the internet is adjudged to be, many incidents of fraud, murder, children exposure to adult materials and information that affect children's upbringing abound. The educational system encourages learners to get involved in the cyber space, but cannot continue to overlook this aspect/ the risks involved and allow children to waste their future in the internet. Based on this, there is need for government to put in place policies that can protect and ensure the safety of students in the cyber space and ensure its implementation. Such policies exist in the developed countries with much effort geared to ensure cyber safety for children; but this is yet to have its root in Nigeria. Therefore, there is need for principals and teachers to have a good knowledge of the current happenings in the cyber space to ensure cyber safety of students.

6. Recommendations

Cyber safety is an everyday issue for most governmental and non- governmental organizations. Therefore, there is need for the following measures to be put in place to enhance better ICT securities as follows;

- Teachers should create interactions with students to know what they share about themselves online and who they meet in other to guide them.
- Government should equip schools with computers and internet facilities to reduce students' use of mobile phones for cyber activities thereby reducing insecurity issues online.
- Schools should get parents involved in checking their children's activities online as most of these activities which expose students to danger on the cyber space are done with smart phones and other devices while at home.
- Government should include internet safety education in the junior secondary school curriculum to ensure a greater awareness.
- Teachers should be good role models by using digital media in the way that they want the students under their care to use it now and in future, as some of the students have access to what teachers do online.

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