

VIRTUAL LEARNING SYSTEM AND COMMUNICATION HEALTH OF PUBLIC TERTIARY INSTITUTIONS IN RIVERS STATE

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ABSTRACT

The study examined the relationship between virtual learning system and communication health of public Tertiary Institutions in Rivers State. The objective of the study was to examine how virtual learning system relate with measures of communication health of public Tertiary Institutions in Rivers State. The cross-sectional explanatory survey research design was adopted for the study. The population of the study consisted of eight (8) public tertiary institutions in Rivers State. The study was a census research with three hundred and eighty (380) administrative heads (Deans, Directors of ICT Centres, and Heads of Departments) as respondents. Structured questionnaire was used to elicit response from the research pigments after it had undergone face and content validation by the supervisors and one other expert in Office and Information Management. Cronbach alpha was used to test the internal consistency of the instrument. Out of three hundred and eighty (380) copies of the questionnaire distributed, the researcher was able to retrieve 342 copies. Simple percentage was used for the demographic analysis, Mean and Standard Deviation were used for the univariate analysis while the bivariate analysis was done using Spearman rank order correlation in SPSS Version 22.0. The findings revealed that virtual learning system has significant positive relationship with communication health of public Tertiary Institutions in Rivers State. The study concluded that that virtual technology adoption enhances communication health in public tertiary institutions in Rivers State. The study recommended that management in public Tertiary Institutions in Rivers State should ensure that office and administrative centres are adequately powered by providing power generating sets and other alternative sources of power supply.

Keywords: Virtual Learning System, Communication Health, Information Clarity

INTRODUCTION

One of the salient issues that necessitated this study is the seeming breakdown in the organizational communication bedeviling the administrative system of some of the public tertiary institutions in Rivers State. The researcher's interaction with the administrative system of some of the public tertiary institutions in Rivers State, suggests that their administrative system is fraught with incidents of late dissemination of information, slow workflow, apparent poor coordination, and information vagueness. In line with the views of Das (2014) and Odu (2021), the administrative system of some of the tertiary institutions is fraught with poor feedback, slow flow of information, poor coordination, file misplacement, and general communication gap. Due to apparent communication gap, administrative staff seem to operate more on assumptions rather than clarity of information. This tends to slow down organizational processes. Meanwhile, the proliferation of virtual technology, it is expected that organizations like tertiary institutions would be achieving communication health.

It equally appears that the adoption of virtual technology is still very low in public tertiary institutions in Nigeria and Rivers State in particular. Obviously, most of their offices are equipped with digital resources such as desktop computers, laptops, printers and even routers. However, core organizational process such as teaching/learning and administration are mostly done manually

with little or no virtual technology. Office data and information contents are mostly stored in local computer system rather than the cloud. Although, some of the institutions now use online payment system and electronic result management systems, other aspects of administration such as meetings and records management and meetings are mostly done traditionally. Virtual learning systems adoption seem to be at a very low level as the use of virtual library, educational zoom and Office WhatsApp are not prominently used. The environment within which a tertiary institution operates appears to have a role in how they operate when it comes of adopting virtual technology. One of such environmental factors that our tertiary institutions have to contend with is power supply. It is no longer news that Nigeria and indeed Rivers State has inadequate power supply. Although, managers and administrators of public tertiary institutions have subscribed to alternative sources of power supply, power supply shortage remained a major challenge to digital work practices.

Another issue that necessitated this study is the dearth of empirical studies on how Ned (2016) examined the relationship between internet services and secretaries' job performance in tertiary institutions in Rivers State; the impact of WhatsApp messenger on students' performance in tertiary institutions in Ghana (Johnson & George, 2016); Influence of voice call (skype) usage on employee productivity: A case of University of Cape Coast staff (Daniel et al., 2017); the effect of the use of social networking sites in the workplace on job performance (Murad, 2017); strategic impact of social media usage on employee productivity: A case of British American tobacco limited employees (Gorst, 2018); the influence of digital communication technologies on office and information managers' job performance in tertiary institutions in Rivers State (Amadike, 2018); the influence of workplace social media usage on administrative effectiveness in Rivers State Civil Service (Dike, 2018); the relationship between electronic communication platforms and administrative effectiveness in Enugu State Government Parastatals (Chiemele, 2018); the impact of new media usage on organizational performance in Dead Sea products companies in Jordan (Ardam, 2019); impact of new media (social networking) on employee performance (Naheed & Tasawar, 2014). The findings of these studies revealed that web based communication platforms, new media usage or social media has enhanced the efficient and effective communication in the workplace. However, these studies did not examine the relationship between workplace new media adoption and its dimensions like business WhatsApp, Instagram, and voice call (skype) and administrative communication health. There is need therefore, to close this knowledge gap. Here lies the problem that necessitated this study.

Research Hypotheses

In line with the research objectives and questions posed above, the following hypotheses were formulated in their null form.

- Ho₁: There is no significant influence of virtual learning system on information circulation of public tertiary institutions in Rivers State, Nigeria.
- Ho₂: There is no significant influence of virtual learning system on administrative coordination of public tertiary institutions in Rivers State, Nigeria.
- Ho₃: There is no significant influence of virtual learning system on information clarity in public tertiary institutions in Rivers State, Nigeria

Virtual Learning System and Communication Health

The emergence and adoption of virtual technology in the work place and the educational institutions can only not be described as innovation but reaction to the changing world as the work environment continues to change. Thus, it reshapes organizational method of carrying out tasks. In the tertiary institutions, the virtual learning system is inevitably springing from the growing wave distance education. One of the indices for the measure and ranking of university globally is in the possession and use of these digital infrastructures. Virtual learning system in the view of Fox (2019) enables students and the institution to collaborate and access education materials at

the comfort of the users. It also curtails costs as the users sit at the comfort of their houses and interact with the school or the students through platforms such as virtual library, educational Zoom, Office WhatsApp, etc. Shahaimi and Khalid (2016) hold that virtual learning system enable tertiary institutions to respond to changes and adopt global best educational practices as the facilities posses the potential to allow users (students, lecturers, administrators, etc.) to access the library at any point.

Thus, the virtual learning system enables collaborations as well as learning activities through games (Korićanin et al., 2014). Virtual learning systems are software application that supports the management of education and teaching by using the internet (Trafford & Shiota, 2011). The virtual learning system concept is more comprehensive compared to computer-aided instructions (CAI) as it contains the communication dimension as well as interaction and discussions between teachers and students or among students (Piccoli et al., 2001). In other words, virtual learning system is a web-based learning platform, which is a reality in the education world that integrates the conventional education concept with the virtual method. Abdullah et al. (2013) referred to virtual learning system as an online classroom and a social space in schools that contains a calendar, social networks, shared workspace and online assessment. Virtual learning system also has computer software tools that compliment computerized learning facilities, such as Learning Management System, Course Management System, Learning Content Management System, Managed Learning Environment, Learning Support System and Learning Platforms (Shahaimi & Khalid, 2016). All these tools have the capacity to enhance communication health in a tertiary institution in terms of information circulation, administrative coordination and information clarity.

Individuals who experience virtual learning would also experience permanent changes that involve the mentality, attitude, thinking and behaviour due to receiving knowledge, supervision and access from online learning resources (Mohaidin, 2000). Frog (2018) averred that virtual learning system contains a learning platform that can be accessed in school or outside a school that has internet. Files and data stored in cloud stores or are cloud-based enable the user to access the contents using various mobile devices. IDs and passwords are not only supplied free-of-charge to teachers and students but parents can also access the virtual learning system (Frog, 2018). Among the special features of virtual learning system is that teachers can share information, give and evaluate student's assignments as well as make assessments and evaluate the student's performance. Students are able to complete assignments either in school or outside school hours as well as obtain the teacher's feedback about their assignments through virtual learning system. Besides that, the school administrators can manage activities by using the calendar application that is shared online by all other users in the school (Frog, 2018). It is clear that Frog virtual learning system is one of the technologies that enable teachers to manage teaching materials as well as deliver lessons by using this platform.

Yeop et al. (2016) noted that the adoption of the virtual learning system improves institutional performance as information and interaction with the school, parents and the students are enhanced. In the light of the above, Ibrahim and Osman (2017) noted that virtual Library is "a collection of resources available on one or more computer systems, where a single interface or entry point to the collections is provided." In basic electronic library practice, e-journals, articles, books, and other scholarly resources of an educational institution are stored and only accessible from the tangible computer systems provided in a physical library space; however, with network virtualization, all library collections of an institution are unified and comprehensively accessible from a single network which can be accessed anywhere and anytime using internet connection with the right digital permission.

Using virtual library as an instance, tertiary institution that trend on this will likely notice a tremendous boom in communication health. This is because educational materials are stored in

the school virtual library where users access and resolve practical and educational problems which will in turn appreciate the school effectiveness. More so, Office WhatsApp is one virtual learning system that has shaped the communication health of organizations, especially in the education sector. Johnson and George (2016) in a study to investigate how WhatsApp usage influences students' performance in tertiary institutions in Ghana found that "WhatsApp instead of making communication easier and faster, thereby enhancing effective flow of information and idea sharing among students, rather has impacted negatively on the performance of tertiary students in Ghana. The study also revealed that the use of WhatsApp among students has resulted to the following issues: academic procrastinations impair students' spellings and grammatical construction of sentences, attention deficiency during lectures, and inability to complete assignments on time. Similarly, Kuppaswamy and Shankar (2010) found that the social network grabs the total attention and concentration of the students and diverts it towards non educational, unethical and inappropriate actions such as useless chatting, time killing by random searching and not doing their jobs. With recent application upgrades, WhatsApp has a lot of interesting features such as video calls among other that catches students' fancy. Also, a study carried out by Pauline and Antony (2018) found that students dedicate more of their time to WhatsApping and other social media platform which makes it difficult for them to give attention to their studies and negatively affects their academic performance in the long run. Students belong to two or more WhatsApp group chats which makes myriad of messages to pop in and the student spends more time reading, replying and downloading videos, voice messages, images and audio files on WhatsApp even during classes.

However, as opined by Gray and Balmer (2017) revealed that the use of WhatsApp enhances lecturer-student academic interactions, enhances feedback for group works and makes learning more interesting. Similarly, a study conducted in two universities in Catalonia by Plana et al. (2013) found that the incorporation of WhatsApp instant messaging in teaching and learning English language increased students' motivation and enthusiasm. We live in social technology-driven society and young students are interested in online activities, so any learning activity that incorporate social media platform such as WhatsApp messenger can be very interesting for students.

From the empirical studies reviewed above, it can be deduced that the use of virtual learning system such as Office WhatsApp, bore positive and negative effects on individuals including students and lecturers. The use of Office WhatsApp in a learning environment such as University, Polytechnic, College of Education, etc. can be of very great succour to the administrative arm of the institution (apart from the students). Amongst the students and lecturers, there can be timeous reporting, timeous notification, timely feedback, effective decision making, etc., through the use of Office WhatsApp. It is pretty fast and easy to pass official messages across all involved administrators through Office WhatsApp.

Another virtual learning system is the use of zoom. The zoom application has become a buzz in the tertiary institution and today it caters to the needs of modern-day learners and the performance of the tertiary institutions. Infusing technologies in classroom learning have added to stimulus and enhanced learner's interaction within the classroom. Virtual learning has taken control as there is more need to globally interact and access institutional contents from every parts of the world with the use of technology. Teaching is one such field where technology has taken over and improved the ways of learning (Poulsson & Kale, 2014). One of the tools employed to improve this collaboration in the virtual world is the zoom. A research conducted by Assaad and Gómez, (2011) on the use of zoom technology for students collaboration based on the research's findings, it seems that Zoom technology is a great tool for collaboration. The study found that students can use the chat box with another learner, with their teacher or with the group. They can see everyone's camera and listen to everyone. Teachers can use the breakout rooms to group learners in pairs,

threes or in whatever size group they want. It's a great way to encourage pair work or group work and allow students to work independently. Mathiasen and Dalsgaard (2016) opened that zoom has become an indispensable technology for the way we work, teach and learn together. Zoom has the capability of hosting 100 participants at a time, including audio and video. The platform is designed so that even with limited bandwidth, it works well. With Zoom's continued improvement in new features, the tertiary institutions can continue to find new and creative ways to create social presence in teaching and learning. Frog (2018) noted that with the technology brought by Zoom, students will forget that their teacher is a few thousand miles away from them. He averred the innovative approach of Zoom technology enhances positive learning outcomes for diverse groups of students as well as encouraging higher education in remote areas while potentially reducing workloads for teachers.

Institutionally speaking, the use of zoom for instruction in the class room has not only helped the students and the school to accelerate its performance and communication health, rather it has shaped the students to be multi-cultural in approach as they are exposed to different culture and follow trend thus, equip students on the various dimension of knowledge. The adoption of zoom as a virtual tool in the tertiary institution also enables the school, parents and other stakeholders to interact and resolve some issues necessary without the parties involved traveling to a scheduled venue. This modern technology has infused on the tertiary institution the consciousness to run a seamless program that can be accessed globally. It is the truism that virtual learning system has changed the tertiary institutions to have a globally informed institution where services can be accessed at any part of the world. This indeed enhances the communication health of tertiary institutions, especially in terms of information circulation, administrative coordination and information clarity.

Socio-Technical Theory

The socio-technical theory was popularized by Eric Trist, Ken Bamforth and Fred Emery, in 1951 based on their work with workers in English coal mines at the Tavistock Institute in London (Geis & Cote, 2012). The theory is made up of two main constructs joined together: socio has to do with people and society while 'technical' has to do with machines and technology. The term "socio-technical" refers to the interrelatedness of social and technical aspects of an organization.

The socio-technical theory holds that business organizations are made up of human beings working together in social groups using equipment, tools, methodologies and knowledge to achieve desirable changes in the system and to bring about the achievement of corporate goals as well as outperforming competitors (Gralton, 2012). This theory holds that changes in organizations and the capacity of organizations to compete favourably in the market are influenced by demands from the external environment which impacts information systems changes in an organization. The socio-technical theory describes how societal changes provoke or necessitates changes in the techniques, procedures, infrastructure and technologies used in organizations (Norris & Moon, 2005). Tertiary institutions more than ever before are facing serious competition from sister institutions especially in the developed countries and as a way of coping and outperforming their competitors, individual tertiary institution has to adopt virtual technologies such as virtual learning system, virtual administrative system and cloud storage system to harness and maximize the communication health (information circulation, administrative coordination, and information clarity).

The following two assumptions of the socio-technical theory are relevant to this study:

i) The interaction of social and technical factors create the conditions for successful (or unsuccessful) system performance (Gralton, 2012). These interactions are comprised partly of linear 'cause and effect' relationships, the relationships that are normally 'designed', and partly from 'non-linear', complex, even unpredictable relationships, which are those that are often unexpected.

ii) The second major principle of socio-technical theory is that “optimization of either socio, or far more commonly the technical, tends to increase not only the quantity of unpredictable, ‘un-designed’, non-linear relationships, but those relationships that are actually injurious to the system’s performance (Galton, 2012).

Thus, second principle of socio-technical theory hinges on joint optimisation. This second principle holds that improving only one aspect of the organization (e.g. human resource) and abandoning other elements such as virtual learning system, virtual administrative system, and cloud storage system will be detrimental to the system. Both the human and technological resources of an organization must be optimized simultaneously for expected results to be achieved. The implication of the joint optimization principle of socio-technical theory in the education sector is that continuous capacity building to increase workers’ awareness of how to use virtual tools may not lead to effective communication health in the institution except it is matched with an upgrade of virtual technology such as virtual learning system, virtual administrative system, and cloud storage system. In this jet age, where digitalization is making waves in the business world, a tertiary institution may not be able to achieve improved information circulation, administrative coordination and information circulation if its virtual technological resources are not properly harnessed and shared within the school.

The justification of the socio-technical theory as the theoretical foundation of this study is based on the fact that the theory talks about how the interaction between people and virtual technology affects organizational performance. It is therefore reasonable to adopt a theory such as this since the work is aimed at getting empirical evidence on how virtual technology adoption interacts with communication health.

METHODOLOGY

Research Design

The study adopted the explanatory cross-sectional survey research design. The study was explanatory in nature because it sought to scientifically establish the relationship between virtual technology adoption and communication health within the context of public tertiary institutions in Rivers State. The population of the study consisted of eight (8) public tertiary institutions in Rivers State. The tertiary institutions rather their staff constitute the population of this study because the criterion variable “communication health” is a macro construct (it manifests at the organizational level). Considering the size of the population (eight institutions), the entire population of eight (8) public tertiary institutions were studied without sampling. Thus, the study was a census research which entails using the entire population of the study. In terms of respondents, administrative heads such as Deans, Directors of ICT Centres, and Heads of Departments were selected to elicit response on behalf of their institutions.

Table 1: Sampling Frame

S/N	List of Public Tertiary Institutions in Rivers State	ICT Directors	Heads of Depts	Deans	Total
1.	University of Port Harcourt, Choba, Port Harcourt	1	80	13	94
2.	Rivers State University, Port Harcourt	1	76	15	92
3.	Ignatius Ajuru University of Education, Rumuolumeni, Port Harcourt	1	33	7	41
4.	Federal Polytechnic of Oil and Gas, Bonny	1	35	11	47
5.	Ken SaroWiwa Polytechnic, Bori	1	19	7	27
6.	Captain Elechi Amadi Polytechnic, Rumuola, Port Harcourt	1	22	7	30
7.	Federal College of Education (Technical), Omoku	1	15	5	21
8.	Rivers State College of Health Science and Technology Management, Port Harcourt	1	15	12	28

Total 8 295 77 380

Source: Convocation and Matriculation Brochures of the Institutions

The sources of data for the study were the primary and secondary sources. The study's primary data was generated through the application of structured questionnaire copies to the identified units of measurement. The analysis of data was done in following order: univariate, bivariate and multivariate analyses. The univariate analysis involved the use of descriptive statistics such as the mean, standard deviation, percentages, frequencies, bar charts, tables); Spearman Rank Order Correlation was employed used for the bivariate analysis, while Partial Correlation was used for the multivariate analysis. The Statistical Package for Social Sciences (SPSS) was used to aid the analysis.

Bivariate Analysis

Virtual Technology Adoption on Information Circulation

Ho₁: There is no significant influence of virtual learning system on information circulation of public tertiary institutions in Rivers State, Nigeria.

Ho₂: There is no significant influence of virtual learning system on administrative coordination of public tertiary institutions in Rivers State, Nigeria.

Ho₃: There is no significant influence of virtual learning system on information clarity in public

Table 2: Correlations between Virtual Learning System on Information Circulation

		Virtual Learning System	Information circulation	Administrative coordination	Information Clarity	
Spearman's rho	Virtual Learning System	Correlation Coefficient	1.000	0.517**	0.652**	0.462**
		Sig. (2-tailed)		.000	.000	.000
		N	342	342	342	342
	Information circulation	Correlation Coefficient	0.517**	1.000	0.517**	0.517**
		Sig. (2-tailed)	.000		.000	.000
		N	342	342	342	342
	Administrative coordination	Correlation Coefficient	0.652**	0.652**	1.000	0.652**
		Sig. (2-tailed)	.000	.000		.000
		N	342	342	342	342
	Information Clarity	Correlation Coefficient	0.462**	0.462**	0.462**	1.000
		Sig. (2-tailed)	.000	.000	.000	
		N	342	342	342	342

** . Correlation is Significant at the 0.01 level (2-tailed).
tertiary institutions in Rivers State, Nigeria.

Source: SPSS Output

Column two of table 2 above shows r value of 0.517 at a significance level of 0.00 which is less than the chosen alpha level of 0.05 for the hypothesis relating virtual learning system with information circulation. Since the significance value is less than the alpha level of 0.05, the null hypothesis (Ho₁) which states that there is no significant influence of virtual learning system on information circulation is rejected and the alternate hypothesis (Ha₁) is accepted. This implies that there is a moderate positive influence of virtual learning system on information circulation of public tertiary institutions in Rivers State, Nigeria.

Column three of table 2 above shows r value of 0.652 at a significance level of 0.00 which is less than the chosen alpha level of 0.05 for the hypothesis relating virtual learning system with administrative coordination. Since the significance value is less than the alpha level of 0.05, the null hypothesis (H_{02}) which states that there is no significant relationship between Virtual Learning System on administrative coordination is rejected and the alternate hypothesis (H_{a2}) is accepted. This implies that there is a strong positive influence of virtual learning system on administrative coordination of public tertiary institutions in Rivers State, Nigeria.

Column four of table 2 above shows r value of 0.462 at a significance level of 0.00 which is less than the chosen alpha level of 0.05 for the hypothesis relating virtual learning system with information clarity. Since the significance value is less than the alpha level of 0.05, the null hypothesis (H_{03}) which states that there is no significant relationship between virtual office data management on information accuracy is rejected and the alternate hypothesis (H_{a3}) is accepted. The correlation value of 0.462 indicates that virtual learning system has a strong positive influence on information clarity in public tertiary institutions in Rivers State, Nigeria. These results show that virtual learning system brings about improved information clarity.

Discussion of Findings

The tests of hypotheses one to three revealed that there is a significant positive relationship between virtual learning system and communication health in terms of information circulation, virtual administrative coordination and information clarity in public tertiary institutions in Rivers State. This implies that when academic and non-academic staff is proficient and very skilled in the use of virtual learning system, their level of effectiveness is enhanced. Hence, increase in virtual learning system usage yields corresponding improvement in communication health in public tertiary institutions in Rivers State. This finding corroborates with the findings of a study conducted by Amadike (2018) which examined the influence of digital communication technologies on office and information managers' job performance in tertiary institutions in Rivers State. The study revealed that adoption of digital communication technologies enhances the job performance of office and information managers in tertiary institutions in Rivers State. The study recommended that functional personal computers, modems, and other digital communication devices should be made accessible to office and information managers' use in their administrative activities.

Similarly, Bergiel et al. (2018) averred that an individual who is skilled in virtual interfacing, such that they can share contents via social media platforms and emails, and as well hold meetings on real time, will be able to connect with colleagues and bosses on time. In another research conducted by Kotler et al. (2017) found that another striking benefit of virtual learning system is that it brings about communication health by enhancing information circulation, administrative coordination and information clarity. The ability to proficiently utilize a video conferencing app such as Zoom, and WhatsApp, etc. for instance helps to fasten up information delivery and also makes information clearer as it could be sent through text, voice note, pictures etc. The recipients would just stay where they are and engage in such meeting on real time. This means that with the application of virtual learning system, students and lecturers can be at the comfort of their home and take lectures. This saves a lot of time and stress, thereby bringing about timeous reporting, timeous notification and timeous Feedback in and outside the institutions. This implies that public tertiary institutions that can successfully deploy these virtualized learning system applications, such as (virtual library, zoom and WhatsApp) will be able to beat the barer which may be caused by distance or pandemic. From the above studies, there is a revelation that the use of virtual learning system in public tertiary institutions is of high effectuality in the teaching and learning processes. It therefore implies that virtual learning system usage in public tertiary institutions in Rivers State is an effective teaching technique that is beneficial to both lecturers and the students they handle. Its use will also enhance the communication health.

CONCLUSIONS

Based on the results and discussion of findings, the study concluded that virtual learning enhances communication health in public tertiary institutions in Rivers State, Nigeria. Academic and non-academic staff can have their job highly beefed up effectively by employing the machineries of virtual learning system. It therefore implies that educational organizations such as tertiary institutions that look up to having their communication health effectively, need to optimize their virtual technology. Conversely, public tertiary institution that refuse to build the virtual learning system, virtual administrative system, and cloud storage system might experience inefficiency in their communication efforts.

RECOMMENDATIONS

Based on the findings and conclusions, the following recommendations were made:

1. The management of public tertiary institutions should optimize and expand the capacity of their online library and other online institution-based interactive platform to enhance educational and administrative communication.
2. The management of public tertiary institutions provide incentives in the form of data subscriptions to enable staff enjoy zoom meetings.
3. The management should maintain the use of workplace WhatsApp platforms to enhance the quality of communication and enhance decision making as well as implementation.
4. Management should provide electronic result management systems that will match the unique needs of the institution and training should be provided to enable all teaching staff use the platform independently.

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